

EFFECTS OF INTIMATE PARTNER VIOLENCE AND MENTAL HEALTH ON HIV
DISEASE PROGRESSION IN WOMEN

By

Jocelyn Christine Anderson

A dissertation submitted to Johns Hopkins University in conformity with the
requirements for the degree of Doctor of Philosophy

Baltimore, Maryland

August 2016

© 2016 Jocelyn C. Anderson

All Rights Reserved

ABSTRACT

Background: Intimate partner violence (IPV) has the ability to negatively impact the lives of women living with HIV through decreased adherence, increased mental health symptoms and substance use and through physiologic responses to chronic stress.

Objectives: This study addressed three specific aims: 1) To determine the prevalence of IPV in a sample of women attending an urban HIV clinic; 2) To examine the association between IPV and HIV treatment and adherence markers, including potential mediating effects of mental health symptoms; and 3) To explore participants' perceptions of the impact of IPV on their HIV care.

Design and Methods: This explanatory sequential mixed-methods study had two phases. Phase 1 included collecting survey data and medical records data from women receiving care at an urban HIV-specialty clinic. Phase 2 consisted of semi-structured in-depth interviews with a sub-set of women who reported IPV on survey measures.

Sample: In total, 239 women completed IPV measures and had available medical records data. Nine of these women also participated in Phase 2 interviews.

Results: Past year IPV was highly prevalent in the sample (51%; 95% CI: 45–58). In bivariate analysis IPV was independently associated having a CD4 count <200 (OR: 3.284; 95% CI: 1.251-8.619; $p=0.016$) and a detectable viral load (OR: 1.842; 95% CI: 1.006-3.371; $p=0.048$), but not with missing >25% of past year scheduled clinic visits. The association between CD4 count and IPV maintained its significance when controlling for demographic variables, substance abuse and symptoms of PTSD and depression (OR: 3.536; 95% CI: 1.114-11.224; $p=0.032$). Qualitatively, women's focus in managing their HIV care included two main themes: (Re)establishing identity and

managing labels and “I know what I’m suppose to do.” Being a mother or caregiver was seen as an important role that women took on, and as such it often impacted their health care decisions. Participants readily identified with this label and placed in as central to their identities and adherence. They were however resistant to accept the label of “victim/survivor” of IPV. They largely minimized the quantity and severity of violence when compared to what was reported on survey measures, and did not identify IPV as a primary barrier to HIV care.

Conclusion: Our findings highlight two primary areas for future research. First, the association between IPV and a low CD4 count when controlling for demographic, behavioral and viral load measures indicates the potential for a physiologic pathway between trauma, including IPV and poorer immune functioning. Further research to identify the specific mechanisms of this pathway is needed in order to establish appropriate biobehavioral interventions. Secondly, the discordance between reported IPV on survey measures and during qualitative interviews indicates that while the relationship between IPV and poorer HIV outcomes may exist quantitatively, women are not identifying IPV as a primary driver of their adherence or health care. Future research including should include qualitative components to understand women’s perceptions of IPV, how these perceptions change over time and how best to design interventions tailored to addressing the complex needs of this patient population. In clinical practice, trauma-informed care models that focus on promoting safety and providing resources for all patients regardless of specific disclosures may begin to address the impact of IPV on HIV treatment outcomes.

Advisor: Nancy Glass, PhD, MPH, RN, FAAN

DEDICATION

“Here’s to the crazy ones. The misfits. The rebels. The trouble-makers. The round pegs in the square holes. The ones who see things differently. They’re not fond of the rules, and they have no respect for the status-quo. You can quote them, disagree with them, glorify or vilify them. But the only thing you can’t do is ignore them. Because they change things. They push the human race forward. And while some may see them as the crazy ones, we see genius. Because the people who are crazy enough to think they can change the world, are the ones who do.”

Rob Siltanen and Ken Segall, Apple Inc.

ACKNOWLEDGEMENTS

This research would not have been possible without a great deal of support and a long list of gratitudes is necessary. First, to the wonderful women of the Moore Clinic who shared their stories and this journey with me. I cannot thank them enough for their time and wisdom. The Moore Clinic staff was also a joy to work with; it was a pleasure to get a glimpse into a clinical realm so different than those I had spent my time previously. I shall continue to use lessons learned from my time in your clinic in research and practice. To the staff from the Johns Hopkins University Center for AIDS Research (NIAID P30AI094189) who shared recruitment tips and tricks, and were always open to discussing the minutia of study protocols. To the research assistants who helped with data collection, Jessica Williams, Jennifer Jensen, Pavithra Jaisankar, Farrah Stern, and Margaret Schultz, your compassion, professionalism and flexibility were essential.

To my amazing dissertation committee members, I regularly told anyone who cared to listen that I work with the coolest people ever, and I hope that I can continue to work with you moving forward. I thank you each for your contributions to my professional and personal growth during my PhD journey.

Dr. Nancy Glass, you are an awe inspiring woman whose dedication to doing the research you loves will not ever be forgotten. Dr. Jacquelyn Campbell, your T32 funding may have literally allowed me to begin this PhD journey, but your time, passion, kind words and the endless opportunities for personal and professional growth you provided me had an immeasurable impact on my ability to continue it. Dr. Jason Farley, you allowed me into, and helped me understand, the world of HIV clinical care. Dr. Jennifer Wenzel, you agreed to take me on in the first place and then stuck with me when I

struggled to keep up, and Dr. Michele Decker you helped me to see the bigger picture.

I must also thank the many others who have provided mentorship and guidance, served on my preliminary committee or as alternates for my final defense: Drs. Jean Anderson, Andrea Gielen, Bryan Lau and Jennifer Stewart – your time and attention were greatly appreciated. Dr. Nancy Perrin who graciously contributed expertise to ensuring that my statistical analysis was coherent. Dr. Daniel Sheridan, who brought me to Baltimore and kept me here despite my repeated protests. I am delighted to call you a mentor, colleague and friend.

To my PhD student colleagues, both those who preceded me and showed me the way and those who have followed me into the program and helped me continue to learn and grow. A special thanks to my forensic nursing colleagues, Jessica Draughon Moret and Bryan Hansen, you understand why I do what I do for a living and I so value your understanding and respect. Lastly, thank you to Martha Abshire, Michelle Patch and Laura Starbird for literally making sure I finished when I was most afraid that I could not.

Funding for this dissertation was provided by:

National Institute of Mental Health

Grant Number F31MH100995

and

Sigma Theta Tau International, Nu Beta Chapter Research Grant

and

the Tylenol® FutureCare Scholarship

Disclaimer:

The views expressed in this document are those of the author, and do not necessarily represent the official views of the National Institute of Mental Health, Sigma Theta Tau International, or McNeil-PPC, Inc.

TABLE OF CONTENTS

Abstract	ii
Dedication	iv
Acknowledgements	v
Table of Contents	viii
List of Tables	xiv
List of Figures	xvi
CHAPTER ONE: INTRODUCTION	1
Purpose	3
Conceptual Framework	3
Significance of the Study	5
Specific Aims	6
Background	7
HIV and Intimate Partner Violence	7
Intimate Partner Violence and HIV Adherence and Outcomes	8
Biologic Impacts of IPV and Trauma	11
HIV, IPV and Mental Health Conditions	12
HIV, IPV and Substance Abuse	14
IPV and Reproductive Coercion	15

Conclusions.....	17
Dissertation Organization	18
References.....	19
CHAPTER TWO: MANUSCRIPT ONE	38
Abstract.....	39
Background.....	40
Study Overview	42
Setting the Stage: Preparation and Training	43
Clinic Partnership	43
iPad-Based Data Collection.....	43
Training	44
Protocols to Address Participant Safety Concerns.....	45
Recruitment and Contact Information	45
Informed Consent	47
Risk Screening.....	48
Discussion.....	53
Conclusions.....	54
References.....	55
CHAPTER THREE: MANUSCRIPT TWO	60
Abstract.....	61

Background	62
Methods.....	63
Study Design.....	63
Recruitment and Data Collection	63
Measures	64
Data Analysis.....	66
Results.....	67
IPV, Mental Health Symptoms, and Substance Abuse	67
Associations with CD4 Count, Viral Suppression, and Missed Visits	68
Discussion	70
Limitations.....	72
Research Implications.....	74
Clinical Implications.....	75
Conclusions.....	77
References.....	78
ADDENDUM TO CHAPTER THREE: MEDIATION ANALYSIS	94
Methods.....	94
Results.....	95
Discussion.....	95
References.....	97

ADDENDUM TO CHAPTER THREE: REPRODUCTIVE COERCION.....	99
Methods.....	99
Results.....	100
Qualitative Findings Related to Reproductive Coercion.....	101
Discussion.....	103
References.....	105
CHAPTER FOUR: MANUSCRIPT THREE.....	110
Abstract.....	111
Background.....	112
Methods.....	114
Study Design.....	114
Recruitment, Eligibility, Consent and Data Collection.....	114
Data Analysis.....	117
Data Integration.....	117
Results.....	118
(Re)establishing Identity and Managing Labels.....	119
“I know what I’m supposed to do”.....	125
Discussion.....	128
Limitations.....	130
Implication for Practice.....	132

Conclusions.....	135
References.....	137
CHAPTER FIVE: DISCUSSION.....	149
Past Year Report of IPV	149
Impact of IPV on HIV Treatment Outcomes.....	151
Impact of Multiple Syndemic Factors on HIV Treatment Adherence: Substance Abuse and Mental Health	153
Women’s Experiences: Minimizing IPV and Managing Labels	156
Limitations and Strengths	160
Implications for Practice	165
Implications for Policy.....	168
Implications for Theory and Research	171
Summary	174
References.....	176
APPENDIX A: POWER ANALYSIS	191
APPENDIX B: ADDITIONAL DATA ANALYSIS TABLES	196
APPENDIX C: STUDY INSTRUMENTS.....	205
Phase 1: Survey Measures	205
Phase 1: Medical Records Abstraction Tool.....	230
Phase 2: Interview Guide (Version 1).....	237

Phase 2: Interview Guide (Version 2)..... 240

LIST OF TABLES

<u>Table</u>	<u>Page</u>
Table 2.1: Participants' responses to safety protocol questions	59
Table 3.1: Participant demographics by past year IPV status.....	85
Table 3.2: Logistic regression models for CD4 count <200 cells/mm ³	86
Table 3.3: Logistic regression models for detectable viral load	87
Table 3.4: Logistic regression models for past year missed visits >25%	90
Table 3a.1: Logistic regression model and Sobel test results from mediation analysis of PTSD and depression on the association between IPV and CD4 count <200, detectable viral load, missed visits >25% outcomes.....	98
Table 3a.2: Prevalence of reproductive coercion, birth control sabotage and pregnancy coercion by age group, n (%)	107
Table 3a.3: Proportion of yes answers to individual reproductive coercion screening items, n (%).....	108
Table 3a.4: Proportion of participants reporting reproductive coercion by HIV adherence and treatment outcomes	109
Table 4.1: Demographic characteristics of interview participants.....	146
Table 4.2 SAVA factors endorsed by participants on survey measures (survey), documented by a health care provider in medical records (MRA) or noted by participants to be associated with HIV care during interviews (interview)	147
Table A.1: Sample Size Needed to Estimate IPV Prevalence with Varying Precision ...	194
Table A.2: Sample size needed to detect specified ORs for primary outcome variables, power= 0.80, $\alpha=0.05$	195

Table B.1: Chi-square analysis of patient characteristics by CD4 count measurement, n (%)	196
Table B.2: Chi-square analysis of patient characteristics by viral load measurement, n (%)	199
Table B.3: Chi-square analysis of patient characteristics by missed visit >25%, n (%)	201
Table B.4: Participants reporting past year substance abuse, depression or PTSD symptomology by type of intimate partner violence experienced, n (%)	203
Table B.5: Qualitative themes and sub-themes endorsed by participants	204

LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
Figure 1.1: Conceptual framework	37
Figure 3.1: Study inclusion diagram	92
Figure 3.2: Intimate partner violence types reported by participants	93
Figure 5.1: Conceptual framework of SAVA syndemic factors	188
Figure 5.2: Conceptual framework of the impact of IPV on HIV disease progression ...	189
Figure 5.3: Conceptual framework combining allostatic load and study concepts	190

CHAPTER ONE: INTRODUCTION

Intimate partner violence (IPV) and its relationship to human immunodeficiency virus (HIV) has been the topic of a growing body of research over the past two decades. Worldwide, 33 million persons are infected with HIV, more than half of them being women and girls; while in the United States, 1.3 million people are infected with HIV (Joint United Nations Programme on HIV and AIDS, 2012 [UNAIDS]). Globally and in the United States, women are becoming infected with HIV at increasing rates when compared to men. In the United States, African-American women are facing a far greater disease burden than their Caucasian counterparts, with the rate of both new HIV infections and HIV-related deaths among black women being 17 times that of white women (Centers for Disease Control, 2012).

The first review of the literature to discuss HIV and IPV was published in 2000. This review aimed to identify what was known regarding forced sex or IPV, risk of HIV acquisition, as well as risk of IPV among women living with HIV (Maman, Campbell, Sweat, & Gielen, 2000). The authors presented evidence that risk of HIV infection was higher in women with IPV histories and that IPV rates were higher in women who were HIV infected (Campbell et al., 2008; Maman, Campbell, Sweat, & Gielen, 2000). A 2008 review added substantially to the understanding of the underlying complexities of the HIV and IPV epidemics. The authors reviewed a far wider range of studies that included assessing the role of forced sex, partner characteristics, and individual risk-taking behaviors. They also included a review and discussion of evidence related to biologic pathways impacting both the direct and indirect risk of HIV infection including biologic factors impacting susceptibility to HIV infection such as sexually transmitted infections

and inflammatory response. (Campbell et al., 2008). While this inclusion opened doors to a new line of research questions, the addition of biologic mediators in the relationship between IPV and HIV infection is still far less researched and understood than their behavior counterparts. The behavioral pathways of HIV acquisition in women with a history of IPV have been shown to include a variety of modalities including direct transmission through forced sexual contact, partners' participation in more high-risk behaviors, and indirectly through increased sexual and drug use behaviors (Jewkes, Dunkle, Nduna, & Shai, 2010). The long-term consequences of stress including dysregulation of the immune and inflammatory responses of women who have experienced IPV has also been identified as a mechanism through which women are more susceptible to a number of negative health consequences including HIV infection (Campbell, Lucea, Stockman, & Draughon, 2013; Humphreys et al., 2012; A. B. Woods et al., 2005; S. J. Woods et al., 2005).

More recently, greater attention is being paid to HIV and IPV as mutually occurring epidemics. With the 2013 White House Report on the intersection of HIV and violence against women and girls, policy makers began to press upon the importance of addressing this disparity in the health of women (Interagency Federal Working Group, 2013). Paralleling the release of this report, researchers began to examine the impact that trauma and violence, particularly IPV, has on HIV care. Multiple studies have shown IPV as not only a risk factor of HIV infection, but as a barrier to diagnosis, entry into care, antiretroviral use and viral suppression (Blackstock, Blank, Fletcher, Verdecias, & Cunningham, 2015; Blank et al., 2015; Espino et al., 2015; Hatcher, Smout, Turan, Christofides, & Stockl, 2015; S. Illangasekare et al., 2012; Kalokhe et al., 2012; Lopez,

Jones, Villar-Loubet, Arheart, & Weiss, 2010; Malow et al., 2013; Ramachandran, Yonas, Silvestre, & Burke, 2010; Rose, House, & Stepleman, 2010; Schafer et al., 2012; Siemieniuk et al., 2013; Sullivan, Messer, & Quinlivan, 2015; Trimble, Nava, & McFarlane, 2013). The impact that IPV has on the care continuum makes it of utmost importance to gain a greater understanding of the specific mechanisms of action and identify areas for intervention.

Purpose

This study was designed to build on existing research regarding HIV care and treatment adherence among urban women living with HIV. Using an explanatory sequential mixed-method approach, this study examined the relationship of past year IPV and mental health conditions on the ability of women living with HIV to engage in HIV care and treatment, as well as their disease progression.

Conceptual Framework

The conceptual framework used for the design of this study (Figure 1 below) is adapted from a framework used by Schafer and colleagues in one of the first published studies to examine biologic measures associated with HIV in relation to reported IPV (Schafer et al., 2012). The framework, while not adapted from a specific biobehavioral theory does includes aspects related to a broader biopsychosocial framework (Engel, 1977), that acknowledges not only the biologic realities of HIV infection and its impact on an individual, but also the impact that social factors such as IPV, and psychological factors such as depression and PTSD have on the health or disease state of an individual. Subsequent to the study's design and initiation, Campbell and colleagues published a more comprehensive conceptual framework of trauma, HIV acquisition and disease

progression (Campbell et al., 2013), which provides pathways (both observed in prior research and theoretical) to address a far wider range of trauma effects in the HIV disease process. One challenge with both frameworks is the number of bidirectional linear associations, limiting the ability to study these phenomena without large samples and extensive longitudinal follow up (Campbell et al., 2013; Schafer et al., 2012).

In order to further address the real world complexities involved in the lives of urban women living with HIV, the study's design and analysis were also informed and guided by syndemic theory. Syndemic theory, initially described in the medical anthropology literature by Singer in 1994 is defined as “a set of multiple intertwined health problems occurring in a population simultaneously experiencing poor physical and social conditions” (Singer, 1996, 2006).

These multiple health and social problems, such as violence, HIV, and poverty act synergistically to create a greater negative impact on health than would otherwise be expected from the disease process alone. Singer first used the syndemic theory to describe the SAVA (Substance Abuse, Violence and AIDS) syndemic among urban residents of Hartford, Connecticut (Singer, 1994, 1996). More recently, a nurse researcher, Gonzalez-Guarda and colleagues examined literature regarding Hispanic women and have included “mental health conditions” as a fourth interlinked piece of the SAVA syndemic (Gonzalez-Guarda, Florom-Smith, & Thomas, 2011; Gonzalez-Guarda, McCabe, Florom-Smith, Cianelli, & Peragallo, 2011). Gonzalez-Guarda further places the SAVA syndemic within a larger ecological framework highlighting the impact that individual, interpersonal, community, and society have on how the syndemic pieces overlap and interact. While SAVA formally defined violence in broad terms, specific

types of gender-based violence have been examined within the framework including IPV and prostitution (Illangasekare, 2011; Romero-Daza, Weeks, & Singer, 2003)

Syndemic frameworks emphasize that medical conditions such as HIV cannot be examined only as biologic and physiologic processes, but in the context of social and psychological factors that act as catalysts for each other and poorer health outcomes in general (Singer, 2009). Syndemic models demand that in order to intervene or promote change in one area of the syndemic, full attention must be paid to the other aspects.

Gonzalez-Guarda and colleagues note that the precise factors that impact individuals, their communities and their experience with the SAVA syndemic, particularly at the community and society levels, are culturally dependent and as such their model highlights the SAVA syndemic and associated factors in Hispanic women (Gonzalez-Guarda, Florom-Smith, et al., 2011; Gonzalez-Guarda, McCabe, et al., 2011; Gonzalez-Guarda, Peragallo, Urrutia, Vasquez, & Mitrani, 2008; Singer, 2009).

Significance of the Study

This study adds to the current body of literature regarding adherence to HIV care and progression of HIV disease in the context of IPV. Whereas the majority of research to date has focused on IPV as a risk factor for the acquisition of HIV (Campbell et al., 2013; Draughon, 2012; Jewkes et al., 2010), or strictly issues related to women's adherence to HIV care in the context of IPV (Blackstock et al., 2015; Blank et al., 2015; Espino et al., 2015; Hatcher et al., 2015; Kalokhe et al., 2012; Lopez et al., 2010; Malow et al., 2013; Ramachandran et al., 2010; Sullivan et al., 2015; Trimble et al., 2013), this current study includes CD4 count to measure overall disease state among women in the sample. This information may be used in future research to address disparities in HIV

care particularly in urban, African-American women. The use of detailed and behaviorally specific IPV measures to identify women who report a broad range of IPV including physical, psychological and sexual violence also adds depth to the currently available research (Illangasekare et al., 2012; Schafer et al., 2012). The current study used multiple data sources to answer questions about the complex and multidirectional relationships between IPV, mental health disorders, substance abuse and HIV disease, which provides unique and critical knowledge of these syndemic factors to provide avenues for intervention and future research.

Specific Aims

This mixed-methods study had three specific aims. Aims 1 and 2 were addressed using quantitative methods while qualitative methods were used for Aim 3.

Aim 1: Determine the past year prevalence of IPV, reproductive coercion, and symptoms of depression and PTSD among adult HIV positive women attending an urban clinic.

Aim 2: Examine the relationship between IPV, depressive symptoms, and PTSD symptoms, with treatment adherence, CD4 count and viral load among adult HIV positive women attending an urban clinic. There were two proposed hypotheses for Aim 2:

Hypothesis 1: HIV positive women who report past year IPV will have poorer clinic attendance, lower CD4 counts and viral loads that are more often detectable compared with HIV positive women who report no past year IPV or reproductive coercion.

Hypothesis 2: The effect of past year IPV on HIV treatment outcomes will be mediated by symptoms consistent with depression and PTSD.

Aim 3: Explore HIV positive women's perception of the role that IPV has on their mental health, treatment adherence, and disease progression

Background

In the past decades, increasing attention has been paid to the intersections of violence, particularly IPV, sexual violence, and HIV. Most of this work has discussed the IPV and HIV as commonly co-morbid conditions, each acting as a risk factor for the other and how, combined, they lead to increased morbidity and mortality for women (Campbell et al., 2008; Draughon, 2012; Dunkle et al., 2004; Gielen et al., 2007). The following review highlights key findings and concepts from a number of areas of HIV and IPV research in relation to the theory and framework presented above.

HIV and Intimate Partner Violence

Violence occurring in the setting of intimate relationships continues to be a highly prevalent issue in the United States and across the globe. The most recent Centers for Disease Control (CDC) population study estimates that one in three women in the United States will be a victim of intimate partner physical, sexual or stalking violence during their lifetime (Black et al., 2011). IPV is more than physical violence—it is a pattern of abuse and coercive behaviors including threat of physical or sexual violence, psychological abuse, or stalking (Saltzman et al., 2002). These patterns of abuse and coercion have been associated with a variety of negative physical and mental health outcomes, including sexual health consequences such as sexually transmitted infections, unintended pregnancy, chronic pelvis pain, and cervical cancer (Campbell et al., 2002; Campbell et al., 2000; Coker, 2007; Ellsberg et al., 2008).

A range of violence types including forced sex, reproductive coercion, physical

and psychological abuse have all been shown to increase a women's risk for acquiring HIV infection (Draughon, 2012; Dunkle et al., 2004; El-Bassel et al., 1998; Ellsberg et al., 2008; Garcia-Moreno & Watts, 2000; Gielen et al., 2007; Krug et al., 2002; Miller, 2006; Teitelman et al., 2008; Teitelman et al., 2009). The associations between the epidemics of violence against women and HIV have been widely explored. Several potential pathways of HIV acquisition among abused women have been postulated, such as increases in personal and abusive partner's sexual risk behavior, increased drug and alcohol use, and increases in sexually transmitted infections, as well as acute and chronic stress responses leading to weakened immune response, greater HIV susceptibility and more rapid disease progression (Draughon, 2012; Dunkle et al., 2004; A. B. Woods et al., 2005; S. J. Woods et al., 2005). Specifically, in the case of sexual assault, acute inflammatory reactions and injuries to the genitalia may increase the risk of HIV transmission above that of consensual intercourse, although this pathway has been minimally explored (Draughon, 2012; Ghosh, Rodriguez-Garcia, & Wira, 2013).

Intimate Partner Violence and HIV Adherence and Outcomes

While a 2015 meta-analysis reviewed 13 studies that reported on HIV treatment engagement or adherence (ART use/prescription, self-reported ART adherence and viral load measures) in the setting of women who had experienced IPV, only four studies were found that examined CD4 count as a specific biologic marker of HIV disease control and progression in relation to IPV (Hatcher et al., 2015; Illangasekare et al., 2012; Schafer et al., 2012). This is important as the focus on IPV as a barrier to adherence neglects the growing body of research linking IPV to chronic inflammatory responses and the potential for biologic pathways, which may contribute to poorer outcomes in women

experiencing both HIV and IPV.

The data included in the 2015 meta-analysis specifically examined three engagement and adherence measures—current ART use, self-reported ART adherence, and viral suppression (Hatcher et al., 2015). Using meta-analytic techniques, each of these three outcomes was associated with IPV. Women who had experienced IPV were less likely to report current ART use and were more likely to report poor ART adherence. They were also more likely to have a detectable viral load, representing concurrency of self-reported and laboratory markers of adherence. The authors also compared the overall magnitude of this effect size to other variables such as substance abuse, depression, stigma and pill burden, and found IPV to have a greater impact than any other examined variable (Hatcher et al., 2015).

Results related to CD4 count data have not been synthesized in meta-analysis, and individual study results have varied (Illangasekare et al., 2012; Schafer et al., 2012). Two of the four identified studies found significant relationships between IPV and CD4 count (Rose et al., 2010; Schafer et al., 2012). Both Schafer and colleagues and Rose and colleagues found associations between IPV and CD4 count less than 200 as well as detectable viral load. Notably, Rose also aimed to assess mediation effects of PTSD and medication adherence on these relationships (Rose et al., 2010). The PTSD analysis was not conducted due to insignificant findings between PTSD and the outcome measures, while self-reported medication adherence did mediate the impact of IPV on both viral load and CD4 count. Their analysis was limited in several ways. First, their total sample size was 40 participants, limiting their statistical analysis. They also limited their mediation testing to the methods of Baron and Kenny (1986). These methods precluded

testing mediation effect of PTSD because it was not significantly associated with the outcomes in their small sample. Lastly, the theoretical and clinical basis for medication adherence directly impacting CD4 count and viral load measures is well established (Chesney, 2006; Nieuwkerk & Oort, 2005). It is not unexpected that this factor will directly impact these outcomes regardless of IPV status. Specifically with viral load, a commonly used proxy measure of ART adherence, including an additional adherence measure in statistical modeling would significantly impact the ability to identify other associations.

Moreover, the clinical population examined in these two studies places limitations on generalizability. Both were in primarily rural settings and Schafer and colleagues included men and women in their sample and did not conduct gender-specific analysis, but instead controlled for gender in multivariate analyses (Rose et al., 2010; Schafer et al., 2012). The fact that the sample included more men (75%) than women (25%) and that the majority of their sample also identified as men who have sex with men may have impacted their results and should be further addressed in larger studies with the ability to complete gender-specific analyses (Schafer et al., 2012).

Results published in 2012 and 2013 did not find statistically significant relationships between IPV and CD4 counts (Illangasekare et al., 2012; Siemieniuk et al., 2013). Both studies were limited in their assessment of IPV, with one study using a three-item screening tool—the Partner Violence Screen (Feldhaus et al., 1997; Illangasekare et al., 2012), and the second using a clinician-driven, one-item interview screening (Siemieniuk et al., 2013). Neither measure of IPV included behavior specific items, but instead asked broadly about categories of abuse. The 2013 Canadian study sample also

looked quite different than the urban population in which the SAVA syndemic framework was developed (Siemieniuk et al., 2013). The sample was racially mixed between Caucasian and Black first-generation immigrants from Sub-Saharan Africa, and rates of lifetime drug (19%) and alcohol abuse (3%) were relatively low.

It should also be noted that in addition to IPV, other violence and trauma exposures including childhood physical or sexual abuse and community violence, have been linked to poorer measures of HIV adherence and immunologic function (Kacanek et al., 2016; Machtinger et al., 2012; Mugavero et al., 2009). These studies provide additional theoretical support for examining the short and long-term biologic and behavioral consequences of trauma in the context of HIV.

Biologic Impacts of IPV and Trauma

Research has shown alterations in inflammatory and immune functioning in women with current or past IPV experiences, with some evidence of recovery of these functions with the cessation of violence (Garcia-Linares et al., 2004; Out et al., 2012; Sanchez-Lorente et al., 2010; Shafran et al., 1996). In 2012, the first study to examine telomere shortening in women who reported a history of abuse was published (Humphreys et al., 2012). The authors found that women who reported a history of abuse had statistically significantly shorter telomeres than non-abused controls. Telomeres are a potential marker of “biologic age” and may be useful in discussing early morbidity and mortality (Eisenberg, 2011). Similar work examining telomere length following childhood traumas including experiencing or witnessing violence has found similar patterns of telomere shortening (Asok, Bernard, Roth, Rosen, & Dozier, 2013; Drury et al., 2014; Fagundes, Glaser, & Kiecolt-Glaser, 2013; Kananen et al., 2010; Moffitt, 2013;

Shalev et al., 2013).

In addition to telomere length, dysregulation of inflammatory markers has also been linked to experiences of trauma. Associations with levels of serum and salivary biomarkers including cortisol, interferon- γ (IFN- γ), interleukin-6 (IL-6), tumor necrosis factor- α (TNF- α) and C-reactive protein (CRP) have all been noted in previous work, however much of this research has been in relatively small samples and included multiple types of lifetime trauma so specific time courses related to acute or chronic sources of trauma and stress are not readily known (Gill et al., 2008; Inslicht et al., 2006; Keeshin et al., 2012; Newton et al., 2011; Out et al., 2012; Pico-Alfonso, 2005; Pico-Alfonso et al., 2004; Punyadeera, 2012; Woods et al., 2005). In order to examine the impact of trauma symptoms as well as experiences, Woods and colleagues (2005) published results that examined a framework of inflammatory immune responses of abused and non-abused women in relationship to their reported depression and PTSD symptoms. They found that the relationship between IPV and inflammatory immune response (as measured by serum IFN- γ level) was mediated by PTSD symptoms. These results provide opportunities not only for additional research, but also avenues for clinical intervention through identification and treatment of PTSD. A 2012 review of biomarkers and associated disease states related to exposure to violence and abuse covered a wide range of topics including chronic pain, cardiovascular diseases, irritable bowel syndrome and cancer, and concluded that the accumulation of data are suggestive of physiologic causes; however, limitations in the study's design warrant a great deal of further research (Keeshin, Cronholm, & Strawn, 2012).

HIV, IPV and Mental Health Conditions

PTSD and depression have both been linked to poorer outcomes for women living with HIV such as poorer adherence, late entry into care, more rapid HIV disease progression, and early death (Cruess et al., 2003; Gielen et al., 2005; Ickovics et al., 2001; Ickovics et al., 2006; Illangasekare, 2011; Leserman, 2000, 2003; Machtinger et al., 2012). As PTSD and depression are common in both abused women and women living with HIV, it is important to address the ways in which these mental health disorders affect women's treatment and disease progression (Gerber et al., 2005; Larson et al., 2005; Laughon et al., 2007; Machtinger et al., 2012; Perez & Johnson, 2008; Woods, 2000).

Pace and Heim (2011) published a review of the psychoneuroimmunology of PTSD. Their review found that PTSD has been linked to a number of inflammatory and immune related medical conditions including cardiovascular disease and diabetes. The biologic pathways that link PTSD, chronic stress, inflammation, and immune system dysregulation have been examined in the context of HIV and IPV separately, but not in a co-morbid sample. Among women who have experienced IPV, PTSD has been shown to predict and mediate inflammatory dysfunction and to be associated with higher levels of the inflammatory markers (C-reactive protein, IFN- γ) (A. B. Woods et al., 2005; S. J. Woods et al., 2005).

In HIV settings, PTSD is associated with poorer disease control including lower CD4 counts and higher viral loads (Ickovics et al., 2006; Machtinger et al., 2012; M. Mugavero et al., 2006; Schafer et al., 2012). A 2012 meta-analysis examined prevalence of PTSD and traumatic events in HIV-positive women (Machtinger et al., 2012). The authors reviewed eight studies that presented prevalence of IPV and were able to estimate

a 55% prevalence rate in a pooled sample of over 2,200 HIV positive women. In six studies reviewed that presented recent PTSD data, prevalence was estimated at 30%. No data were presented on HIV disease progression in their analysis, however the alarming rate of IPV and PTSD in these pooled samples of women living with HIV (more than 8 times the estimated general population prevalence (Kessler, Chiu, Demler, Merikangas, & Walters, 2005) indicate a desperate need for interventions.

Depression has been linked to poorer HIV treatment outcomes, including poorer adherence to clinic visits and higher rates of HIV-related mortality (Chander et al., 2006; Ickovics et al., 2001; Ickovics et al., 2006; Ironson et al., 2005; Leserman, 2000, 2003). Strength of much of this work is that it has been longitudinal in nature; however it has been primarily conducted in MSM populations, to the exclusion of women. A review by Leserman (2003) presented a summary of longitudinal studies that examined HIV disease progress and stress or depression. Only two of the 24 articles included adult women in their samples, one included male and female children while the remainder included only male samples. Measures of stress presented in this review may also overlap with PTSD findings in other studies, as some studies measured stress as “traumatic life events.” A more recent review of the impacts of substance abuse, depression, severe mental illness on risk for HIV, and treatment adherence and outcomes found mixed results regarding the impact of depression on HIV treatment adherence, viral suppression and mortality with possible mediation of mortality risk through adherence (Chander et al., 2006).

HIV, IPV and Substance Abuse

Substance abuse is widely identified as a risk factor for HIV acquisition via needle sharing and high-risk sexual behaviors including inconsistent condom use and

exchanging sex for drugs or money. With ten percent of worldwide HIV infections attributed to injection drug use and 40% of people living with HIV in the United States reporting a history of illegal drug use (Aceijas et al., 2004; Burnam et al., 2001). In addition to increased risk of acquisition, substance abuse has been associated with decreased antiretroviral prescription, medication adherence, and greater numbers of AIDS defining illnesses (Moore et al., 2004; Wood et al., 2003, 2004). In a nationally representative sample, one in eight persons living with HIV screened positive for substance use disorders, and nearly 40% reported any prior use of drug use (exclusive of marijuana) (Andersen et al., 2006). Research on the intersections of IPV and substance abuse have found bidirectional effects, in which substance abuse is both a risk factor for abuse, but is also used as a coping mechanism to deal with previous or ongoing abuse (Burke et al., 2005; El-Bassel et al., 1998). Interventions for addressing the co-occurrence of substance abuse and HIV exist, and both the SAVA syndemic framework and a trauma-informed care approach have been used to review these interventions (Auerbach & Smith, 2015; Blankenship, Reinhard, Sherman, & El-Bassel, 2015; Brezing, Ferrara, & Freudenreich, 2015; Gilbert et al., 2015). These reviews found interventions to have impacts on individual behaviors (condom use, needle sharing, HIV testing), but noted the methodological difficulty in addressing and measuring change across multiple constructs within the SAVA syndemic framework (Blankenship et al., 2015; Brezing et al., 2015; Gilbert et al., 2015).

IPV and Reproductive Coercion

Sexual health in violent intimate relationships has historically been measured through forced or coerced sex acts, and is thought to contribute to the increased

prevalence of sexually transmitted infections including HIV in this vulnerable population (Jewkes et al., 2010; Reynolds et al., 2007). More recently, pregnancy and lack of reproductive control has also been addressed in the IPV literature. A 2005 systematic review found that women who experience IPV also experience more unintended pregnancies than non-abused women; they also identified a relationship between abortions and IPV (Pallitto et al., 2005); while poorer pregnancy outcomes such as low birth weight and premature deliveries have been linked to IPV during pregnancy in meta-analysis (Shah & Shah, 2010).

Research with female survivors of IPV has recently defined reproductive coercion as a component of the controlling abuse that many experience in their relationship. Specifically, reproductive coercion is defined as a male partner's pregnancy-promoting behaviors including sabotage of birth control methods, and use of verbal pressure or physical force to influence pregnancy timing or outcome (Miller, Jordan, et al., 2010; Miller & Silverman, 2010). Reproductive coercion has been linked to unintended pregnancies, poorer pregnancy outcomes, and increased sexually transmitted infections (Miller, Decker, McCauley, et al., 2010; Miller et al., 2011; Miller, Decker, Raj, et al., 2010; Miller et al., 2007; Miller, Jordan, et al., 2010; Miller & Silverman, 2010; Miller, 2006; Silverman et al., 2010; Thiel de Bocanegra et al., 2010).

Reproductive coercion has not previously been examined in an HIV positive population, although its relationship to high-risk sexual behaviors, such as lack of condom use, and forced sex has a strong theoretical relationship to HIV acquisition and subsequent treatment adherence and disease progression (Miller, Decker, McCauley, et al., 2010; Miller, Decker, Raj, et al., 2010; Silverman et al., 2011; Thiel de Bocanegra et

al., 2010).

Conclusions

The presented literature provides substantial evidence that the overlapping epidemics of HIV, IPV, substance abuse, and mental health conditions need to be examined in the context of a complex syndemic approach, and that biologic and behavioral factors may be contributing to the relationship between IPV and HIV disease progression. This dissertation study aims to address some of the gaps in the literature identified herein.

Using a mixed-methods approach, this research examined the prevalence of IPV among adult women participating in HIV care in an urban HIV clinic setting. Associations between IPV, mental health, substance abuse, and HIV-related treatment adherence and disease outcomes were assessed using survey and medical records data. Women's perceptions of the relationships between these syndemic issues and their HIV care were examined using qualitative methods. This study provides a foundation for designing, tailoring, and testing interventions to address the complex and interconnected issues of IPV, substance abuse, and mental health co-morbidities among women living with HIV.

As nurses provide both direct and indirect care to persons experiencing both IPV and HIV, the results of this study will provide additional knowledge of the impact of IPV on HIV treatment outcomes. The focus on both biologic and behavioral pathways through which IPV may impact HIV treatment markers will add to the sparse literature on the topic. It is additionally hoped that examining adherence measures (missed visits and viral load) separately from the broader treatment outcome of CD4 count will provide

opportunities for future research on biologic pathways through which IPV may impact CD4 count, irrespective of adherence.

Dissertation Organization

There are five chapters in this dissertation. Chapter One provides background information relative to the prior literature, conceptual framework, purpose and aims of the dissertation.

Chapter Two (Manuscript One) consists of a presentation of study safety protocols, specifically those designed to address risk of suicide or intimate partner homicide identified during the course of the study. Relevant results from the safety protocols are included and recommendations for future research are presented.

Chapter Three (Manuscript Two) presents results from Aims 1 and 2, including the prevalence of IPV and its associations with three HIV treatment and adherence outcomes (CD4 count, viral load and missed clinic visits). An addendum to Chapter Three presents prevalence data for reproductive coercion.

Chapter Four (Manuscript Three) includes results related to Aim 3. Qualitative data regarding women's perceptions of IPV, substance abuse, and mental health in relation to their HIV care are presented in the context of quantitative data collected to address Aims 1 and 2.

Chapter Five examines the results of the study as a whole, including a fuller discussion of key findings and implications for theory, practice and future research.

References

- Aceijas, C., Stimson, G. V., Hickman, M., Rhodes, T. (2004). United Nations Reference Group on HIV/AIDS Prevention and Care Among IDU in Developing and Transitional Countries. Global overview of injecting drug use and HIV infection among injecting drug users. *AIDS*, 18(17), 2295-2303.
- Andersen, R., Bozzette, S., Shapiro, M. F., St. Clair, P. A., Morton, S. C., Crystal, S....
Athey, L. A. (2006). *Disparities in Care for HIV Patients: Results of the HCSUS Study*. Santa Monica, CA: RAND Corporation. Available from
http://www.rand.org/pubs/research_briefs/RB9171.html.
- Asok, A., Bernard, K., Roth, T. L., Rosen, J. B., & Dozier, M. (2013). Parental responsiveness moderates the association between early-life stress and reduced telomere length. *Developmental Psychopathology*, 25(3), 577-585.
doi:10.1017/s0954579413000011
- Auerbach, J. D., & Smith, L. R. (2015). Theoretical foundations of research focused on HIV prevention among substance-involved women: A review of observational and intervention studies. *Journal of Acquired Immune Deficiency Syndrome*, 69 Suppl 2, S146-154. doi:10.1097/qai.0000000000000658
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173-1182.
- Black, M. C., Basile, K. C., Breiding, M. J., Smith, S. G., Walters, M. L., Merrick, M. T., . . . Stevens, M. R. (2011). The national intimate partner and sexual violence survey (NISVS): 2010 summary report. Atlanta, GA: Centers for Disease Control

and Prevention.

Blackstock, O. J., Blank, A. E., Fletcher, J. J., Verdecias, N., & Cunningham, C. O.

(2015). Considering care-seeking behaviors reveals important differences among HIV-positive women not engaged in care: Implications for intervention. *AIDS Patient Care and STDs*, 29 Suppl 1, S20-26. doi:10.1089/apc.2014.0271

Blank, A. E., Fletcher, J., Verdecias, N., Garcia, I., Blackstock, O., & Cunningham, C.

(2015). Factors associated with retention and viral suppression among a cohort of HIV+ women of color. *AIDS Patient Care and STDs*, 29 Suppl 1, S27-35. doi:10.1089/apc.2014.0272

Blankenship, K. M., Reinhard, E., Sherman, S. G., & El-Bassel, N. (2015). Structural

interventions for HIV prevention among women who use drugs: A global perspective. *Journal of Acquired Immune Deficiency Syndrome*, 69 Suppl 2, S140-145. doi:10.1097/qai.0000000000000638

Brezing, C., Ferrara, M., & Freudenreich, O. (2015). The syndemic illness of HIV and trauma: Implications for a trauma-informed model of care. *Psychosomatics*, 56(2), 107-118. doi:10.1016/j.psych.2014.10.006

Burke, J. G., Thieman, L. K., Gielen, A. C., O'Campo, P., & McDonnell, K. A. (2005).

Intimate partner violence, substance use, and HIV among low-income women: Taking a closer look. *Violence Against Women*, 11(9), 1140-1161. doi:11/9/1140 [pii]10.1177/1077801205276943

Burnam, M. A., Bing, E. G., Morton, S. C., Sherbourne, C., Fleishman, J. A., London, A.

S., . . . Shapiro, M. F. (2001). Use of mental health and substance abuse treatment services among adults with HIV in the United States. *Archives of General*

- Psychiatry*, 58(8), 729-736.
- Campbell, J., Jones, A. S., Dienemann, J., Kub, J., Schollenberger, J., O'Campo, P., . . . Wynne, C. (2002). Intimate partner violence and physical health consequences. *Archives of Internal Medicine*, 162(10), 1157-1163.
- Campbell, J. C., Baty, M. L., Ghandour, R. M., Stockman, J. K., Francisco, L., & Wagman, J. (2008). The intersection of intimate partner violence against women and HIV/AIDS: A review. *International Journal of Injury Control and Safety Promotion*, 15(4), 221-231. doi:10.1080/17457300802423224
- Campbell, J. C., Lucea, M. B., Stockman, J. K., & Draughon, J. E. (2013). Forced sex and HIV risk in violent relationships. *American Journal of Reproductive Immunology*, 69 Suppl 1, 41-44. doi:10.1111/aji.12026
- Campbell, J. C., Woods, A. B., Chouaf, K. L., & Parker, B. (2000). Reproductive health consequences of intimate partner violence: A nursing research review. *Clinical Nursing Research*, 9(3), 217-237.
- Centers for Disease Control and Prevention. (2012). HIV Surveillance Report, 2010. Atlanta, GA: Author.
- Chander, G., Himelhoch, S., & Moore, R. D. (2006). Substance abuse and psychiatric disorders in HIV-positive patients: Epidemiology and impact on antiretroviral therapy. *Drugs*, 66(6), 769-789.
- Chesney, M. A. (2006). The elusive gold standard. Future perspectives for HIV adherence assessment and intervention. *Journal of Acquired Immune Deficiency Syndrome*, 43 Suppl 1, S149-155. doi:10.1097/01.qai.0000243112.91293.26
- Coker, A. L. (2007). Does physical intimate partner violence affect sexual health? A

- systematic review. *Trauma Violence Abuse*, 8(2), 149-177. doi:8/2/149 [pii]
10.1177/1524838007301162
- Cruess, D. G., Petitto, J. M., Leserman, J., Douglas, S. D., Gettes, D. R., Ten Have, T. R., & Evans, D. L. (2003). Depression and HIV infection: Impact on immune function and disease progression. *CNS Spectrum*, 8(1), 52-58.
- Draughon, J. E. (2012). Sexual assault injuries and increased risk of HIV transmission. *Advanced Emergency Nursing Journal*, 34(1), 82-87.
doi:10.1097/TME.0b013e3182439e1a
- Drury, S. S., Mabile, E., Brett, Z. H., Esteves, K., Jones, E., Shirtcliff, E. A., & Theall, K. P. (2014). The association of telomere length with family violence and disruption. *Pediatrics*, 134(1), e128-137. doi:10.1542/peds.2013-3415
- Dunkle, K. L., Jewkes, R. K., Brown, H. C., Gray, G. E., McIntyre, J. A., & Harlow, S. D. (2004). Gender-based violence, relationship power, and risk of HIV infection in women attending antenatal clinics in South Africa. *Lancet*, 363(9419), 1415-1421. doi:10.1016/S0140-6736(04)16098-4
- Eisenberg, D. T. (2011). An evolutionary review of human telomere biology: The thrifty telomere hypothesis and notes on potential adaptive paternal effects. *American Journal of Human Biology*, 23(2), 149-167. doi:10.1002/ajhb.21127
- El-Bassel, N., Gilbert, L., Krishnan, S., Schilling, R., Gaeta, T., Purpura, S., & Witte, S. S. (1998). Partner violence and sexual HIV-risk behaviors among women in an inner-city emergency department. *Violence and Victims*, 13(4), 377-393.
- Ellsberg, M., Jansen, H. A., Heise, L., Watts, C. H., & Garcia-Moreno, C. (2008). Intimate partner violence and women's physical and mental health in the WHO

- multi-country study on women's health and domestic violence: An observational study. *Lancet*, 371(9619), 1165-1172. doi:S0140-6736(08)60522-X [pii]
10.1016/S0140-6736(08)60522-X
- Engel, G. (1977). The need for a new medical model: A challenge for biomedicine. *Science*, 196, 129-136. doi:doi:10.1126/science.847460
- Espino, S. R., Fletcher, J., Gonzalez, M., Precht, A., Xavier, J., & Matoff-Stepp, S. (2015). Violence screening and viral load suppression among HIV-positive women of color. *AIDS Patient Care STDS*, 29 Suppl 1, S36-41.
doi:10.1089/apc.2014.0275
- Fagundes, C. P., Glaser, R., & Kiecolt-Glaser, J. K. (2013). Stressful early life experiences and immune dysregulation across the lifespan. *Brain Behavior and Immunity*, 27(1), 8-12. doi:10.1016/j.bbi.2012.06.014
- Feldhaus, K. M., Koziol-McLain, J., Amsbury, H. L., Norton, I. M., Lowenstein, S. R., & Abbott, J. T. (1997). Accuracy of 3 brief screening questions for detecting partner violence in the emergency department. *Journal of American Medical Association*, 277(17), 1357-1361.
- Garcia-Linares, M. I., Sanchez-Lorente, S., Coe, C. L., & Martinez, M. (2004). Intimate male partner violence impairs immune control over herpes simplex virus type 1 in physically and psychologically abused women. *Psychosomatic Medicine*, 66(6), 965-972. doi:10.1097/01.psy.0000145820.90041.c0
- Garcia-Moreno, C., & Watts, C. (2000). Violence against women: Its importance for HIV/AIDS. *AIDS*, 14 Suppl 3, S253-265.
- Gerber, M. R., Leiter, K. S., Hermann, R. C., & Bor, D. H. (2005). How and why

- community hospital clinicians document a positive screen for intimate partner violence: A cross-sectional study. *BMC Family Practice*, 6, 48. doi:10.1186/1471-2296-6-48
- Ghosh, M., Rodriguez-Garcia, M., & Wira, C. R. (2013). Immunobiology of genital tract trauma: Endocrine regulation of HIV acquisition in women following sexual assault or genital tract mutilation. *American Journal of Reproductive Immunology*, 69 Suppl 1, 51-60. doi:10.1111/aji.12027
- Gielen, A. C., Ghandour, R. M., Burke, J. G., Mahoney, P., McDonnell, K. A., & O'Campo, P. (2007). HIV/AIDS and intimate partner violence: Intersecting women's health issues in the United States. *Trauma Violence Abuse*, 8(2), 178-198. doi:8/2/178 [pii] 10.1177/1524838007301476
- Gielen, A. C., McDonnell, K. A., O'Campo, P. J., & Burke, J. G. (2005). Suicide risk and mental health indicators: Do they differ by abuse and HIV status? *Women's Health Issues*, 15(2), 89-95. doi:S1049-3867(04)00135-5 [pii]10.1016/j.whi.2004.12.004
- Gilbert, L., Raj, A., Hien, D., Stockman, J., Terlikbayeva, A., & Wyatt, G. (2015). Targeting the SAVA (substance abuse, violence, and aIDS) syndemic among women and girls: A global review of epidemiology and integrated interventions. *Journal of Acquired Immune Deficiency Syndrome*, 69 Suppl 2, S118-127. doi:10.1097/qai.0000000000000626
- Gill, J., Vythilingam, M., & Page, G. G. (2008). Low cortisol, high DHEA, and high levels of stimulated TNF-alpha, and IL-6 in women with PTSD. *Journal of Trauma and Stress*, 21(6), 530-539. doi:10.1002/jts.20372

- Gonzalez-Guarda, R. M., Florom-Smith, A. L., & Thomas, T. (2011). A syndemic model of substance abuse, intimate partner violence, HIV infection, and mental health among Hispanics. *Public Health Nursing, 28*(4), 366-378. doi:10.1111/j.1525-1446.2010.00928.x
- Gonzalez-Guarda, R. M., McCabe, B. E., Florom-Smith, A., Cianelli, R., & Peragallo, N. (2011). Substance abuse, violence, HIV, and depression: An underlying syndemic factor among Latinas. *Nursing Research, 60*(3), 182-189. doi:10.1097/NNR.0b013e318216d5f4
- Gonzalez-Guarda, R. M., Peragallo, N., Urrutia, M. T., Vasquez, E. P., & Mitrani, V. B. (2008). HIV risks, substance abuse, and intimate partner violence among Hispanic women and their intimate partners. *Journal of the Association of Nurses in AIDS Care, 19*(4), 252-266. doi:10.1016/j.jana.2008.04.001
- Hatcher, A. M., Smout, E. M., Turan, J. M., Christofides, N., & Stockl, H. (2015). Intimate partner violence and engagement in HIV care and treatment among women: A systematic review and meta-analysis. *AIDS, 29*(16), 2183-2194. doi:10.1097/QAD.0000000000000842
- Humphreys, J., Epel, E. S., Cooper, B. A., Lin, J., Blackburn, E. H., & Lee, K. A. (2012). Telomere shortening in formerly abused and never abused women. *Biology Research in Nursing, 14*(2), 115-123. doi:10.1177/1099800411398479
- Ickovics, J. R., Hamburger, M. E., Vlahov, D., Schoenbaum, E. E., Schuman, P., Boland, R. J., . . . Group, H. I. V. E. R. S. (2001). Mortality, CD4 cell count decline, and depressive symptoms among HIV-seropositive women: Longitudinal analysis from the HIV Epidemiology Research Study. *Journal of the American Medical*

Association, 285(11), 1466-1474.

Ickovics, J. R., Milan, S., Boland, R., Schoenbaum, E., Schuman, P., Vlahov, D., & the HIV Epidemiology Research Study Group (2006). Psychological resources protect health: 5-year survival and immune function among HIV-infected women from four US cities. *AIDS* (London, England), 20(14), 1851-1860.
doi:10.1097/01.aids.0000244204.95758.15

Illangasekare. (2011). The role of the intimate partner violence, HIV and substance abuse syndemic in women's mental health. (Doctor of Philosophy Dissertation), Johns Hopkins University, Baltimore, Maryland.

Illangasekare, S., Tello, M., Hutton, H., Moore, R., Anderson, J., Baron, J., & Chander, G. (2012). Clinical and mental health correlates and risk factors for intimate partner violence among HIV-positive women in an inner-city HIV clinic. *Women's Health Issues*, 22(6), e563-569. doi:10.1016/j.whi.2012.07.007

Inslicht, S. S., Marmar, C. R., Neylan, T. C., Metzler, T. J., Hart, S. L., Otte, C., . . . Baum, A. (2006). Increased cortisol in women with intimate partner violence-related posttraumatic stress disorder. *Psychoneuroendocrinology*, 31(7), 825-838.
doi:10.1016/j.psyneuen.2006.03.007

Interagency Federal Working Group. (2013). Addressing the intersection of HIV/AIDS violence against women and girls and gender-related health disparities. Washington, DC: The White House.

Ironson, G., Weiss, S., Lydston, D., Ishii, M., Jones, D., Asthana, D., . . . Antoni, M. (2005). The impact of improved self-efficacy on HIV viral load and distress in culturally diverse women living with AIDS: The SMART/EST Women's Project.

- AIDS Care*, 17(2), 222-236. doi:10.1080/09540120512331326365
- Jewkes, R. K., Dunkle, K., Nduna, M., & Shai, N. (2010). Intimate partner violence, relationship power inequity, and incidence of HIV infection in young women in South Africa: A cohort study. *Lancet*, 376(9734), 41-48. doi:S0140-6736(10)60548-X [pii]10.1016/S0140-6736(10)60548-X
- Joint United Nations Programme on HIV and AIDS. (2012). Global Report: UNAIDS report on the global AIDS epidemic 2010. Geneva: Author.
- Kacanek, D., Malee, K., Mellins, C. A., Tassiopoulos, K., Smith, R., Grant, M., . . . Puga, A. (2016). Exposure to violence and virologic and immunological outcomes among youth with perinatal HIV in the pediatric HIV/AIDS cohort study. *Journal of Adolescent Health*. doi:10.1016/j.jadohealth.2016.03.004
- Kalokhe, A. S., Paranjape, A., Bell, C. E., Cardenas, G. A., Kuper, T., Metsch, L. R., & del Rio, C. (2012). Intimate partner violence among HIV-infected crack cocaine users. *AIDS Patient Care and STDs*, 26(4), 234-240. doi:10.1089/apc.2011.0275
- Kananen, L., Surakka, I., Pirkola, S., Suvisaari, J., Lonnqvist, J., Peltonen, L., . . . Hovatta, I. (2010). Childhood adversities are associated with shorter telomere length at adult age both in individuals with an anxiety disorder and controls. *PLoS One*, 5(5), e10826. doi:10.1371/journal.pone.0010826
- Keeshin, B. R., Cronholm, P. F., & Strawn, J. R. (2012). Physiologic changes associated with violence and abuse exposure: An examination of related medical conditions. *Trauma Violence Abuse*, 13(1), 41-56. doi:10.1177/1524838011426152
- Kessler, R. C., Chiu, W. T., Demler, O., Merikangas, K. R., & Walters, E. E. (2005). Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the

- National Comorbidity Survey Replication. *Archives of General Psychiatry*, 62(6), 617-627. doi:10.1001/archpsyc.62.6.617
- Krug, E. G., Mercy, J. A., Dahlberg, L. L., & Zwi, A. B. (2002). World report on violence and health. *Biomedica*, 22 Suppl 2, 327-336.
- Larson, M. J., Miller, L., Becker, M., Richardson, E., Kammerer, N., Thom, J., . . . Savage, A. (2005). Physical health burdens of women with trauma histories and co-occurring substance abuse and mental disorders. *The Journal of Behavioral Health Services & Research*, 32(2), 128-140.
- Laughon, K., Gielen, A. C., Campbell, J. C., Burke, J., McDonnell, K., & O'Campo, P. (2007). The relationships among sexually transmitted infection, depression, and lifetime violence in a sample of predominantly African American women. *Research in Nursing & Health*, 30(4), 413-428.
- Leserman, J. (2000). The effects of depression, stressful life events, social support, and coping on the progression of HIV infection. *Current Psychiatry Reports*, 2(6), 495-502.
- Leserman, J. (2003). HIV disease progression: Depression, stress, and possible mechanisms. *Biologic Psychiatry*, 54(3), 295-306. doi:S0006322303003238 [pii]
- Lopez, E. J., Jones, D. L., Villar-Loubet, O. M., Arheart, K. L., & Weiss, S. M. (2010). Violence, coping, and consistent medication adherence in HIV-positive couples. *AIDS Education & Prevention*, 22(1), 61-68. doi:10.1521/aeap.2010.22.1.61
- Machtiger, E. L., Wilson, T. C., Haberer, J. E., & Weiss, D. S. (2012). Psychological trauma and PTSD in HIV-positive women: A meta-analysis. *AIDS and Behavior*. doi:10.1007/s10461-011-0127-4

- Malow, R., Devieux, J. G., Stein, J. A., Rosenberg, R., Jean-Gilles, M., Attonito, J., . . . Pape, J. W. (2013). Depression, substance abuse and other contextual predictors of adherence to antiretroviral therapy (ART) among Haitians. *AIDS and Behavior*, 17(4), 1221-1230. doi:10.1007/s10461-012-0400-1
- Maman, S., Campbell, J., Sweat, M. D., & Gielen, A. C. (2000). The intersections of HIV and violence: Directions for future research and interventions. *Social Science & Medicine (1982)*, 50(4), 459-478.
- Miller, E., Decker, M. R., McCauley, H. L., Tancredi, D. J., Levenson, R. R., Waldman, J., . . . Silverman, J. G. (2010). Pregnancy coercion, intimate partner violence and unintended pregnancy. *Contraception*, 81(4), 316-322.
doi:10.1016/j.contraception.2009.12.004
- Miller, E., Decker, M. R., McCauley, H. L., Tancredi, D. J., Levenson, R. R., Waldman, J., . . . Silverman, J. G. (2011). A family planning clinic partner violence intervention to reduce risk associated with reproductive coercion. *Contraception*, 83(3), 274-280.
- Miller, E., Decker, M. R., Raj, A., Reed, E., Marable, D., & Silverman, J. G. (2010). Intimate partner violence and health care-seeking patterns among female users of urban adolescent clinics. *Maternal and Child Health Journal*, 14(6), 910-917.
doi:10.1007/s10995-009-0520-z
- Miller, E., Decker, M. R., Reed, E., Raj, A., Hathaway, J. E., & Silverman, J. G. (2007). Male partner pregnancy-promoting behaviors and adolescent partner violence: Findings from a qualitative study with adolescent females. *Ambulatory Pediatrics*, 7(5), 360-366. doi:10.1016/j.ambp.2007.05.007

- Miller, E., Jordan, B., Levenson, R., & Silverman, J. G. (2010). Reproductive coercion: Connecting the dots between partner violence and unintended pregnancy. *Contraception, 81*(6), 457-459.
- Miller, E., & Silverman, J. G. (2010). Reproductive coercion and partner violence: Implications for clinical assessment of unintended pregnancy. *Expert Review of Obstetrics & Gynecology, 5*(5), 511-515. doi:10.1586/eog.10.44
- Miller, J. (2006). A specification of the types of intimate partner violence experienced by women in the general population. *Violence Against Women, 12*(12), 1105-1131.
- Moffitt, T. E. (2013). Childhood exposure to violence and lifelong health: Clinical intervention science and stress-biology research join forces. *Developmental Psychopathology, 25*(4 Pt 2), 1619-1634. doi:10.1017/s0954579413000801
- Moore, R. D., Keruly, J. C., & Chaisson, R. E. (2004). Differences in HIV disease progression by injecting drug use in HIV-infected persons in care. *Journal of Acquired Immune Deficiency Syndrome, 35*(1), 46-51.
- Mugavero, M., Ostermann, J., Whetten, K., Leserman, J., Swartz, M., Stangl, D., & Thielman, N. (2006). Barriers to antiretroviral adherence: The importance of depression, abuse, and other traumatic events. *AIDS Patient Care STDS, 20*(6), 418-428. doi:10.1089/apc.2006.20.418
- Mugavero, M. J., Lin, H. Y., Willig, J. H., Westfall, A. O., Ulett, K. B., Routman, J. S., . . . Allison, J. J. (2009). Missed visits and mortality among patients establishing initial outpatient HIV treatment. *Clinical Infectious Disease, 48*(2), 248-256. doi:10.1086/595705
- Newton, T. L., Fernandez-Botran, R., Miller, J. J., Lorenz, D. J., Burns, V. E., &

- Fleming, K. N. (2011). Markers of inflammation in midlife women with intimate partner violence histories. *Journal of Women's Health, 20*(12), 1871-1880.
doi:10.1089/jwh.2011.2788
- Nieuwkerk, P. T., & Oort, F. J. (2005). Self-reported adherence to antiretroviral therapy for HIV-1 infection and virologic treatment response: A meta-analysis. *Journal of Acquired Immune Deficiency Syndrome, 38*(4), 445-448.
- Out, D., Hall, R. J., Granger, D. A., Page, G. G., & Woods, S. J. (2012). Assessing salivary C-reactive protein: Longitudinal associations with systemic inflammation and cardiovascular disease risk in women exposed to intimate partner violence. *Brain Behavior and Immunity, 26*(4), 543-551. doi:10.1016/j.bbi.2012.01.019
- Pace, T. W., & Heim, C. M. (2011). A short review on the psychoneuroimmunology of posttraumatic stress disorder: From risk factors to medical comorbidities. *Brain Behavior and Immunity, 25*(1), 6-13. doi: 10.1016/j.bbi.2010.10.003
- Pallitto, C. C., Campbell, J. C., & O'Campo, P. (2005). Is intimate partner violence associated with unintended pregnancy? A review of the literature. *Trauma, Violence & Abuse, 6*(3), 217-235. doi:10.1177/1524838005277441
- Perez, S., & Johnson, D. M. (2008). PTSD compromises battered women's future safety. *Journal of Interpersonal Violence, 23*(5), 635-651. doi:0886260507313528
[pii]10.1177/0886260507313528
- Pico-Alfonso, M. A. (2005). Psychological intimate partner violence: The major predictor of posttraumatic stress disorder in abused women. *Neuroscience and Biobehavior Reviews, 29*(1), 181-193. doi:10.1016/j.neubiorev.2004.08.010
- Pico-Alfonso, M. A., Garcia-Linares, M. I., Celda-Navarro, N., Herbert, J., & Martinez,

- M. (2004). Changes in cortisol and dehydroepiandrosterone in women victims of physical and psychological intimate partner violence. *Biologic Psychiatry*, 56(4), 233-240. doi:10.1016/j.biopsych.2004.06.001
- Punyadeera, C. (2012). Human saliva as a tool to investigate intimate partner violence. *Brain Behavior and Immunity*, 26(4), 541-542. doi:10.1016/j.bbi.2012.02.006
- Ramachandran, S., Yonas, M. A., Silvestre, A. J., & Burke, J. G. (2010). Intimate partner violence among HIV-positive persons in an urban clinic. *AIDS Care*, 22(12), 1536-1543. doi:10.1080/09540121.2010.482199
- Reynolds, N. R., Sun, J., Nagaraja, H. N., Gifford, A. L., Wu, A. W., & Chesney, M. A. (2007). Optimizing measurement of self-reported adherence with the ACTG adherence questionnaire: A cross-protocol analysis. *Journal of Acquired Immune Deficiency Syndrome*, 46(4), 402-409.
- Romero-Daza, N., Weeks, M., & Singer, M. (2003). "Nobody gives a damn if I live or die": Violence, drugs, and street-level prostitution in inner-city Hartford, Connecticut. *Medical Anthropology*, 22(3), 233-259. doi:10.1080/01459740306770
- Rose, R. C., House, A. S., Stepleman, L.M. (2010). Intimate partner violence and its effects on the health of African American HIV-positive women. *Psychological Trauma: Theory, Research, Practice and Policy*, 2 311-317..
- Saltzman, L. E., Fanslow, J. L., McMahon, P. M., & Shelley, G. A. (2002). Intimate partner violence surveillance: Uniform definitions and recommended data elements. Atlanta, GA: Centers for Disease Control and Prevention
- Sanchez-Lorente, S., Blasco-Ros, C., Coe, C. L., & Martinez, M. (2010). Recovery of

immune control over herpes simplex virus type 1 in female victims of intimate partner violence. *Psychosomatic Medicine*, 72(1), 97-106.

doi:10.1097/PSY.0b013e3181c5080a

Schafer, K. R., Brant, J., Gupta, S., Thorpe, J., Winstead-Derlega, C., Pinkerton, R., . . .

Dillingham, R. (2012). Intimate partner violence: A predictor of worse HIV outcomes and engagement in care. *AIDS Patient Care and STDs*, 26(6), 356-365.

doi:10.1089/apc.2011.0409

Shafran, S. D., Singer, J., Zarowny, D. P., Phillips, P., Salit, I., Walmsley, S. L., . . .

Tsoukas, C. M. (1996). A comparison of two regimens for the treatment of mycobacterium avium complex bacteremia in AIDS: rifabutin, ethambutol, and clarithromycin versus rifampin, ethambutol, clofazimine, and ciprofloxacin.

Canadian HIV Trials Network Protocol 010 Study Group. *New England Journal of Medicine*, 335(6), 377-383. doi:10.1056/NEJM199608083350602

Shah, P. S., & Shah, J. (2010). Maternal exposure to domestic violence and pregnancy and birth outcomes: A systematic review and meta-analyses. *Journal of Women's Health*, 19(11), 2017-2031. doi:10.1089/jwh.2010.2051

Shalev, I., Moffitt, T. E., Sugden, K., Williams, B., Houts, R. M., Danese, A., . . . Caspi,

A. (2013). Exposure to violence during childhood is associated with telomere erosion from 5 to 10 years of age: A longitudinal study. *Molecular Psychiatry*, 18(5), 576-581. doi:10.1038/mp.2012.32

Siemieniuk, R. A., Krentz, H. B., Miller, P., Woodman, K., Ko, K., & Gill, M. J. (2013).

The clinical implications of high rates of intimate partner violence against HIV-positive women. *Journal of Acquired Immune Deficiency Syndrome*, 64(1), 32-38.

doi:10.1097/QAI.0b013e31829bb007

- Silverman, J. G., Decker, M. R., McCauley, H. L., Gupta, J., Miller, E., Raj, A., & Goldberg, A. B. (2010). Male perpetration of intimate partner violence and involvement in abortions and abortion-related conflict. *American Journal of Public Health, 100*(8), 1415-1417. doi:10.2105/ajph.2009.173393
- Silverman, J. G., McCauley, H. L., Decker, M. R., Miller, E., Reed, E., & Raj, A. (2011). Coercive forms of sexual risk and associated violence perpetrated by male partners of female adolescents. *Perspectives on Sexual and Reproductive Health, 43*(1), 60-65. doi:10.1363/4306011; 10.1363/4306011
- Singer, M. (1994). AIDS and the health crisis of the U.S. urban poor: The perspective of critical medical anthropology. *Social Science & Medicine, 39*(7), 931-948.
- Singer, M. (1996). A dose of drugs, a touch of violence, a case of AIDS: Conceptualizing the SAVA syndemic. *Free Inquiry in Creative Sociology, 24*(2), 99-110.
- Singer, M. (2006). Syndemics (S. Boslaugh Ed.). Thousand Oaks, CA: Sage Publications, Inc.
- Singer, M. (2009). Introduction to syndemics: A systems approach to public and community health. San Francisco, CA: Jossey-Bass.
- Sullivan, K. A., Messer, L. C., & Quinlivan, E. B. (2015). Substance abuse, violence, and HIV/AIDS (SAVA) syndemic effects on viral suppression among HIV positive women of color. *AIDS Patient Care STDS, 29* Suppl 1, S42-48. doi:10.1089/apc.2014.0278
- Teitelman, A. M., Ratcliffe, S. J., Dichter, M. E., & Sullivan, C. M. (2008). Recent and past intimate partner abuse and HIV risk among young women. *Journal of*

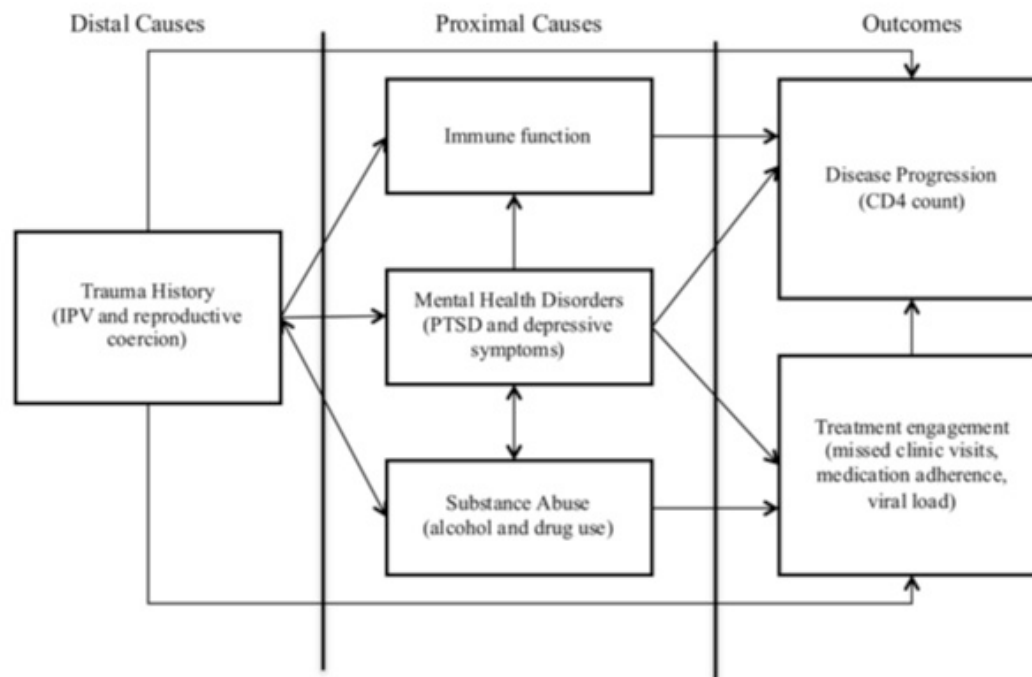
- Obstetrics Gynecology Neonatal Nursing*, 37(2), 219-227. doi:JOGN231 [pii]
10.1111/j.1552-6909.2008.00231.x
- Teitelman, A. M., Seloilwe, E. S., & Campbell, J. C. (2009). Voices from the frontlines: The epidemics of HIV/AIDS and violence among women and girls. *Health Care for Women International*, 30(3), 184-194. doi:10.1080/07399330902739239
- Thiel de Bocanegra, H., Rostovtseva, D. P., Khera, S., & Godhwani, N. (2010). Birth control sabotage and forced sex: Experiences reported by women in domestic violence shelters. *Violence Against Women*, 16(5), 601-612. doi:16/5/601 [pii]
10.1177/1077801210366965
- Trimble, D. D., Nava, A., & McFarlane, J. (2013). Intimate partner violence and antiretroviral adherence among women receiving care in an urban southeastern Texas HIV clinic. *Journal of the Association of Nurses in AIDS Care*, 24(4), 331-340. doi:10.1016/j.jana.2013.02.006
- Wood, E., Montaner, J. S., Yip, B., Tyndall, M. W., Schechter, M. T., O'Shaughnessy, M. V., & Hogg, R. S. (2003). Adherence and plasma HIV RNA responses to highly active antiretroviral therapy among HIV-1 infected injection drug users. *Canadian Medical Association Journal*, 169(7), 656-661.
- Wood, E., Montaner, J. S., Yip, B., Tyndall, M. W., Schechter, M. T., O'Shaughnessy, M. V., & Hogg, R. S. (2004). Adherence to antiretroviral therapy and CD4 T-cell count responses among HIV-infected injection drug users. *Antiviral Therapy*, 9(2), 229-235.
- Woods, A. B., Page, G. G., O'Campo, P., Pugh, L. C., Ford, D., & Campbell, J. C. (2005). The mediation effect of posttraumatic stress disorder symptoms on the

relationship of intimate partner violence and IFN-gamma levels. *American Journal of Community Psychology*, 36(1-2), 159-175. doi:10.1007/s10464-005-6240-7

Woods, S. J. (2000). Prevalence and patterns of posttraumatic stress disorder in abused and postabused women. *Issues in Mental Health Nursing*, 21(3), 309-324.

Woods, S. J., Wineman, N. M., Page, G. G., Hall, R. J., Alexander, T. S., & Campbell, J. C. (2005). Predicting immune status in women from PTSD and childhood and adult violence. *Advances in Nursing Science*, 28(4), 306-319.

Figure 1.1. *Conceptual framework*



Note: Conceptual framework adapted from Shafer et al., 2012.

CHAPTER TWO: MANUSCRIPT ONE

Conducting Clinically-Based Research in Vulnerable Populations: Safety Protocols from
a Study of Intimate Partner Violence Among Women Living with HIV

Jocelyn C. Anderson, PhD (c), MSN, RN, FNE-A

Nancy Glass, PhD, MPH, RN, FAAN

Jacquelyn Campbell, PhD, RN, FAAN

Target Journal: BMJ Public Health

Abstract

Background: Maintaining participant safety is of utmost importance during research involving participants who have experienced intimate partner violence. Limited specific guidance or results from safety protocols are available in the literature, particularly information related to use of technology-based approaches to informed consent, data collection, and contacting participants during the course of a study.

Methods: We present details of a study safety protocol developed and utilized in a study of IPV in a sample of women receiving care at an urban HIV specialty clinic. The protocol includes information related to the use of various technological strategies to promote safety and allow autonomy in participant decision-making through the research process. These included voice-over-internet-protocol telephone numbers, iPad-based screening and data collection, computer administered risk messaging, and research team notifications. Specific protocols for management of participants at risk for suicide or intimate partner homicide are also discussed, and include results from participants' risk-sharing preferences in our sample.

Discussion: Use of technology and partnership with clinic staff helped to provide an environment whereas research regarding IPV could be conducted without undue burden or risk to participants. Utilizing a computerized survey administration provided a variety of practical and safety benefits. The majority of participants who screened into high risk categories for suicide or intimate partner homicide did not choose to have their results shared with their health care providers, indicating the importance of allowing participants control over data sharing whenever possible.

Background

In 1990, Parker and Ulrich presented what was arguably the first published guidance on safety protocols for intimate partner violence (IPV) research. Since that time, additions to the literature have presented more challenges and strategies for the safe and ethical conduct of IPV research (Btoush & Campbell, 2009; Ellsberg & Heise, 2005; Sullivan & Cain, 2004). Most commonly these include recommendations around ensuring safety when contacting and interacting with participants, maintaining participant confidentiality, and issues related to disclosures of information such as mandatory reporting laws and Certificates of Confidentiality (Btoush & Campbell, 2009; Parker & Ulrich, 1990; Sullivan & Cain, 2004). These recommendations and other ethical discussions about IPV research revolves around participants' autonomy in decision-making regarding not only their participation in research, but also how research information will be shared as a result of voluntary or mandatory reporting policies that are part of research protocols (Btoush & Campbell, 2009; Fontes, 2004; Sullivan & Cain, 2004). The more globally focused World Health Organization guidelines provide strategies to maintain safety during household level studies, including IPV-related questions for one respondent per household (Ellsberg & Heise, 2005). While the risks and benefits of IPV related research have been previously discussed in the literature, it is rare to see reporting of adverse events resulting from IPV research in the literature. The few studies that have presented data related to psychological harms from IPV and other trauma related research have not shown significant adverse effects (Fontes, 2004; Griffin, Resick, Waldrop, & Mechanic, 2003; Walker, Newman, Koss, & Bernstein, 1997). Relatively low rates of distress have been reported in these studies (Griffin et al., 2003;

Newman & Kaloupek, 2004; Walker et al., 1997; Yeater, Miller, Rinehart, & Nason, 2012). When asked, participants in IPV and other interpersonal trauma related research commonly report that they would be willing to participate again and have reported unintended benefits, such as being able to speak with someone about the violence or being referred to resources as part of a research study (Griffin et al., 2003; Walker et al., 1997). A 2012 study found that when comparing experiences of college students who answered a series of trauma and sexual behavior questionnaires to a group that completed a series of cognitive tests, participants in both groups reported similarly low amounts of distress; thus, the authors concluded that trauma-related survey research meets the definition of minimal risk (Yeater et al., 2012). One major gap in the published strategies is a lack of attention to use of technology throughout the research process. Yet when Institutional Review Boards and scientific review committees consider research involving victims of abuse, the potential risks of increasing violence, homicide, and participants' distress are all issues of vital concern. It is important to balance the sometimes unpredictable risks of participating in IPV related research and the agency and autonomy of women who are managing their risks daily and can often provide unique, creative, and individual strategies to minimize risks in the context of their life.

Regarding technology use in IPV research, the publication by Btoush and Campbell (2009) begins to discuss password-protection and encryption of study data, which has since become standard data handling practice across clinical and research institutions (The Health Insurance Portability and Accountability Act of 1996 [HIPAA], 1996; Department of Health and Human Services [DHHS], 1991). In addition to standardization of digital data storage procedures, a number of internet, smartphone, and

computer-based strategies have been utilized in research and clinical care as well as in trauma and IPV-related research (Bloom et al., 2014; Garabedian, Ross-Degnan, & Wharam, 2015; Gilbert et al., 2016; Glass et al., 2015; Hegarty et al., 2015; Marcano Belisario et al., 2015). A second notable gap is the lack of specific guidance regarding determining and responding to individual participants' risk levels and preferences for referrals or information. To begin to address these gaps, we present examples of strategies used to maintain research participants' safety and autonomy from a study of IPV and health outcomes among women conducted in an urban HIV clinic. We will highlight steps taken to promote participants' safety and autonomy throughout the study including the use of technology-based strategies for data collection and management.

Study Overview

The safety protocols and results presented herein are from a study designed to obtain information regarding the prevalence of IPV among women attending an urban HIV clinic. All participants were women living with HIV and obtaining HIV care services from the clinic where data were collected. In addition to IPV, this study collected self-report data regarding mental health and substance abuse topics. In total, 259 women consented to participation, two voluntarily withdrew from the study before completing survey measures, and 18 were removed from the dataset during medical records review because: 1) they were duplicate participants, or 2) they did not meet the study's eligibility criteria (i.e., not HIV positive, not receiving HIV care at the study clinic). The study participants largely resembled the overall clinic population with a median age of 50 years (range 24–66). They were primarily black (86.6%), not working outside the home (86.4%) and over half (57.3%) of the participants had completed high school or a GED.

Setting the Stage: Preparation and Training

Clinic Partnership

A key component of any study set in a clinical environment is establishing a relationship with the partner organization. This is particularly important to ensure safety and confidentiality for studies involving vulnerable persons, of which abused women are an example because of already existing power differentials from structures and systems and personal positions (e.g., health care provider, health care system, and patient power differentials) and for studies involving information about potentially stigmatizing information such as intimate partner violence, mental health problems, or substance abuse (DHHS, 1991). For the purposes of this study, the relationship began during the early planning phases of the project and included members of the research team spending time in the partner clinic site, observing the clinic's flow, and meeting members of the clinic staff to prioritize safety and confidentiality in recruitment, consent and data collection. The partnership with the clinic was reflected in a number of protocol items that are discussed in subsequent sections.

iPad-Based Data Collection

The second choice made early in the study design process was the use of iPad-based data collection. This method held many benefits both practically and from a safety perspective. In the busy clinic setting where there were no consistently available areas for private eligibility screening, the iPads provided an opportunity for women to complete all aspects of the screening, consent, survey measures, and risk follow up in a clinic waiting room setting without impacting privacy. The use of the tablet for screening purposes minimized duplicate participants by comparing the entered name and birth date

to those already in the dataset. It also allowed for risk messaging to be provided to the participant immediately following the survey measures and automated scoring, without having to wait for any scoring or review by the research team. We chose this not only for the ease of use by study team members, but importantly because computerized screening for IPV has shown higher rates of disclosures than face-to-face screenings (Hussain et al., 2015; Trautman, McCarthy, Miller, Campbell, & Kelen, 2007). In addition, allowing the participant full autonomy in decision making regarding further discussions of risk at that visit as well as a greater amount of perceived privacy would encourage the participant to be fully candid in their responses.

The computerized data collection process included benefits such as direct entry of data by the participant, the ability for the system to prompt participants regarding unanswered questions, and automatically capture length of time to complete the survey. Direct data entry by participants minimized risk of data entry errors while automatic prompts regarding incomplete fields helps to minimize missing data (Barentsz et al., 2014; Weber, Yarandi, Rowe, & Weber, 2005). However, due to the sensitive nature of many of the questions, we did not use this technology to force responses to questions except those required for eligibility screening, participant identification and risk protocols. Participants received one missed item reminder per page of the survey and were given the option to return to the missed items or continue to the next screen without answering the skipped questions.

Training

Training for this study's team members was conducted to ensure familiarity with general IPV knowledge and protocol details. This training included one-on-one or small

group didactic work as well as precepted time in the clinic setting. Training included information on survey administration and safety measures for participants who had difficulty with reading or use of the tablet, assessing for and responding to participants who wished to speak about their IPV homicide or suicide risk, and an introduction to the clinic staff and workflow. Training was conducted by Ms. Anderson, a nurse who has both a professional research and clinical background working with women who have experienced sexual and intimate partner violence.

Protocols to Address Participant Safety Concerns

Recruitment and Contact Information

For communication with participants, this study used a generic university email address and a voice-over-internet-protocol (VOIP) phone number specific to the study. The same contact information was used for recruitment and follow-up. The VOIP allowed for maintaining privacy regarding the exact nature of the study in the event that persons other than the participant were making contact with the study. The technology allowed the investigators to call or text participants from a computer or cell phone that did not appear on caller ID as either a blocked or hospital phone number. This was important as phone numbers associated with the research team or the clinic may unintentionally disclose the nature of the study (as being related to HIV and/or IPV), while blocked numbers decrease the likelihood that participants will be able to identify or locate them for use in contacting the study team. Regardless of the physical telephone of the research team member, incoming calls to the study team appeared as coming from the study's VOIP number and could be answered in a way to maintain participant safety (i.e., "women's health study") instead of including the name of the HIV clinic or the

investigator's names which could be easily identified as being researchers who specialized in IPV from a simple internet search. The technology also allowed the number to be forwarded to any phone (cell or landline) in order to maintain timely answering and returning of calls. Outgoing contacts from the study team generically referred to a "women's health study"; the university/hospital name was also included in outgoing messages if participants indicated that this was safe.

Care was further taken to assure the safety of contact information for any participant follow-up communications. Upon participants' completion of study measures, a research team member was able to log into the data collection system and was notified if the participant had consented to being contacted for follow-up purposes. They were then able to fill in an electronic form with safe contact information provided by the participant. Prompts for safety of phone calls, voicemails and text messages were built into the system for phone numbers. Free text boxes allowed notation of participants who preferred phone calls or message reference to the specific clinic or the hospital/university more generally. The form provided options for participants to indicate whether utilizing information already on file in the electronic medical record could be used to contact them as well, so women did not need to re-provide information already on file, but could also indicate "no" if they chose to only be contacted through a specific phone number or email address.

The electronic form was designed to be used in conjunction with a research assistant; it could not be accessed by the participant directly as a study team member login was required to access the contact information section. This ensured that necessary safety information was obtained or if participants were unable or declined to provide

information that appropriate notations were made in the database; it also acted as a data safeguard to maintain contact information separate from participants' survey data.

Informed Consent

Previous concerns have been raised about collecting written consent forms from participants when the risk of collecting, storing and providing participants with consents barring their names in association with the study details is substantial, such as in research related to sensitive topics—HIV, IPV, or sexual assault (DHHS, 1991; Pedroni & Kenneth, 2001). This is a particular concern in situations when other identifying information is not being collected, or can be removed from datasets after data collection is complete. In accordance with the University's IRB, verbal consent was obtained by trained research team members. The approved consent script was provided to participants on the iPads, and was reviewed by the participant and research team member together. Consent/declination was indicated by selecting the appropriate item on the iPad. This allowed for both written and verbal methods of communicating the consent information to potential participants.

Mandatory reporting laws and policies vary greatly between institutions and jurisdictions. Despite variation in specifics, all locations have some requirement for reporting child abuse, elder/vulnerable adult abuse, and imminent risk of harm to self or others. It is important for research team members to be familiar with their reporting requirements and develop protocols for assuring that reporting is completed in a way that fulfills legal responsibilities. It is also important for participants to be aware of what disclosures would trigger a mandatory report, and how such reporting would be handled by the research team (Btoush & Campbell, 2009; Sullivan & Cain, 2004). For this study,

we included language in the consent documents detailing the items that would trigger mandatory reporting. We did not include any direct questions related to mandatory reporting topics in the survey items (i.e., there were no specific items in the survey about child abuse/neglect, but the consent process did include information about the limits to confidentiality, including mandatory reporting of child abuse and how such reporting requirements would be handled by the research team). For those participants chosen for follow-up individual interviews as part of this study, the consent document was again verbally reviewed with participants who were then given another opportunity to ask questions or decline participation. No mandatory reports were triggered during this study.

Risk Screening

A key safety priority was asking women about their interest in sharing issues of violence and mental health with their health care provider to receive additional support and referrals, or keeping all information shared with the research team confidential from health care providers in the partner clinic. We included two risk-screening protocols and responses in the study. These were related to risk of intimate partner homicide and risk of suicide, and were based on protocols utilized in a prior community-based IPV research study (Eden et al., 2015). Risk for intimate partner homicide was assessed with the Danger Assessment (Campbell, Webster, & Glass, 2009), which is a risk assessment tool designed and validated for clinical and research use to identify women at risk of being killed by their current or former intimate partners. The tool is available freely for clinical and research use, with the scoring algorithm being available to those who complete an online or in-person training (Campbell, 2004). Scoring ranges from -3 to 37 and there are

four danger risk categories—Variable, Increased, Severe, and Extreme. We chose to include risk messaging for women scoring in the top two categories (Danger Assessment scores >13).

Women who met the criteria for being at risk were shown an additional screen at the end of the tablet survey. This screen included a list of local and national IPV related resources as well as two questions. The first additional question asked if/how participants would like to receive a copy of the IPV resource lists. Options included a paper copy provided in the clinic that day, a copy emailed to them, or that they did not want a copy of the resources. The second question asked if the participant wanted their Danger Assessment score and risk category shared with their healthcare team at the clinic. If they indicated “yes”, they were asked to provide an updated safe contact method for the provider such as phone, email, or U.S. postal mail. Women were also assured that answering yes to this question would indicate their consent to share only their risk information, not their answers to other survey questions. This provided participants an opportunity to have this sensitive information shared with their health care provider through the research team instead of them having to bring it up during a direct patient-provider encounter. These communications took place within two business days of the patient’s participation in the study via the hospital/university email system. The previously established relationship with the clinic allowed for a research team member to access the electronic medical record to obtain the participant’s care provider information (i.e., nurse case manager, social worker, primary provider, psychiatrist, etcetera).

Potential suicide risk was assessed using three questions in survey measures. High risk answers to any two of the three questions would trigger the participant to be

placed into the risk category. Two questions were given to all participants during the Center for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1977).

Participants were asked how many days in the past two weeks that they endorsed the following statements “I wished I were dead” and “I wanted to hurt myself.” Possible answers were a five-point Likert scale ranging from “Not at all or less than 1 day” to “Nearly every day for two weeks.” Participants who answered “Nearly every day for two weeks” or “5 to 7 days” to either question were considered at risk for that question. The third question we used to measure potential risk was an item on the Danger Assessment that asked participants if they had ever threatened or tried to kill themselves (Campbell, 2004; Campbell et al., 2009). A “yes” was considered at risk for this question. The Danger Assessment was only given to participants who had indicated past year IPV on earlier screening tools. We considered at risk answers to any two of the three items to indicate potential suicide risk.

Participants who were in the at-risk group were shown an additional screen at the end of the survey (distinct from the IPV homicide risk screen) that included additional language regarding suicide risk. This messaging included prompts for the participant to think about whether they had considered suicide, whether they had a plan, and whether they had a specific method or time to kill themselves. The language for this messaging was adapted from previous internet-based work with women in abusive relationships and was originally developed in collaboration with an expert in trauma, IPV and mental health (Eden et al., 2015). Women were then asked to indicate how they preferred to seek help if needed. The four options provided to women for this item were: “I have my own healthcare provider, counselor, or other supportive person who I can call”; “I can

call the National Suicide Hotline at 1-800-273-TALK (1-800-273-8255) and talk to a confidential counselor over the phone”: “I want a research assistant from the study to talk with me today”: and “I’m OK right now, but if it becomes a problem for me, I’ll ask for help.” Women were also asked if they wanted the research team to share their potential suicide risk and CES-D answers/score with their healthcare team. As with the IPV homicide risk screen, women who answered “yes” were asked to provide safe and up-to-date contact information for the provider to use.

In addition to using survey items and including triggered risk messaging at the completion of the tablet-based survey, we also included information in the written protocol documents addressing participants who either indicated that they wanted to speak with a research team member about their IPV homicide or suicide risk factors and resources. The protocol for suicide did include information for the research assistant to have in the clinic regarding assessing suicidality and use of community and hospital resources as immediate referrals for women who were at risk (i.e., the National Suicide Hotline, 911, or in-house emergency service activation). These documents were covered in research team member trainings and were available to study team members in hard copy and digital versions. This aspect of the protocol did not need to be utilized during the study. The clinic-based therapists and psychiatrist provided patients who had previously established mental health care at the clinic to schedule acute appointments within two business days for urgent but non-emergent issues per their standard policies. The research team did assist in obtaining such an appointment for one participant who consented to having her information shared with her health care provider.

Of the 239 women included in the final dataset, 30 (13% of total sample, 25% of

those reporting past year violence) met this study's criteria for being at high risk for intimate partner homicide. One additional woman did not complete the Danger Assessment due to technical issues, but did receive resources and was offered referrals and provided answers to risk messaging questions. Results from participants' responses to the risk protocol question are presented in Table 2.1. Of note, one of the primary study aims was to assess the prevalence of IPV in the clinic, so nearly half ($n=117$, 49%) of the sample did not report any type of past year IPV. Seventeen women (7% of the total sample) met this study's criteria for potential suicidality and completed this additional survey safety protocol. Of these 17 women, 10 (59%) had also screened as high risk for intimate partner homicide. Only one participant requested to speak with a research assistant about their suicidal thoughts and she did not endorse a current suicide plan, but indicated a need to talk with someone about her current life stressors and confirmed that she was at the clinic to see her psychiatrist that day. Nearly half ($n=8$, 47%) reported that they were comfortable speaking with their current healthcare providers about any suicidal thoughts they were having and seven women (41%) indicated that they did not currently feel at risk, but would ask for help if needed. Additional results from the suicide safety protocol are shown in Table 2.1.

For both the intimate partner homicide and suicide protocols, the majority (74% and 59%, respectively) of women declined to have their information shared with their clinic care team. Anecdotal accounts from some participants included that their providers were already aware of the issues they screened as high risk for (sometimes prompting them to ask for the information not to be shared again, sometimes prompting them to consent to sharing), while others related that they did not currently consider themselves at

risk (i.e., not currently having suicidal thoughts, having recently left an abuser, or having an abuser who was in jail) and did not want to involve the healthcare team in non-acute issues.

Discussion

This study's protocol adds to those previously published presenting strategies for the safe and ethical conduct of IPV research. Our experiences highlight the use of technology to implement rigorous safety protocols without creating undue burden to participants or research team members. The relatively low number of participants meeting our risk criteria can be used to help estimate resources needed when planning studies to examine IPV in clinical settings. Even with more liberal definitions of risk, especially for suicide in which risk determination was limited to two or three individual items that inquired about the broader topics of self-harm and suicidal thoughts, we did not find a volume of response that would overwhelm a clinic or community-based referral location. Our integration with clinic staff was hugely beneficial in navigating the clinical research process. The partnership allowed for recruitment from a designated research area within the clinic as well as for direct provider referrals of participants when needed for mental health concerns.

Importantly, it should be noted that the majority of our participants who triggered risk protocols did not ask to have their results shared with their providers, nor to speak with a research team member on-site following participation. While data regarding reasons for not sharing were not specifically collected, recorded research team notes indicated a wide spectrum of reasons including not wanting to share their experience of IPV or suicidality with their provider, or having already disclosed to their providers and

not feeling a need to tell them again. Regardless of individual reasons, it is important to note that variation in participant requests regarding information-sharing need to be addressed in research protocols. Creating methods for safely referring participants to community or clinic resources may be an important way of connecting research participants with services that can improve their health and well-being as long as these procedures are conducted in a manner that promotes autonomy in decision-making for the participants.

Conclusions

The underlying goal of all research involving human subjects is to gain knowledge in order to better understand and address conditions that impact their health and overall well-being. This type of clinical research can be completed utilizing methods that promote safe and ethical treatment of participants who may have a variety of social and health care factors making them vulnerable to risk of stigma or violence in the event of undesired disclosure. Responsible conduct of research requires that researchers conducting studies involving these potentially at-risk groups have an understanding of the complexity of the issues facing participants. As such, researchers must develop thoughtful plans for discussing mandatory disclosures, and providing opportunities including clear opt-in or opt-out points for referrals initiated during the research process.

References

- Barentsz, M. W., Wessels, H., van Diest, P. J., Pijnappel, R. M., Haaring, C., van der Pol, C. C., . . . Verkooijen, H. M. (2014). Tablet, web-based, or paper questionnaires for measuring anxiety in patients suspected of breast cancer: Patients' preferences and quality of collected data. *Journal of Medical Internet Research*, 16(10), e239. doi:10.2196/jmir.3578
- Bloom, T. L., Glass, N. E., Case, J., Wright, C., Nolte, K., & Parsons, L. (2014). Feasibility of an online safety planning intervention for rural and urban pregnant abused women. *Nursing Research*, 63(4), 243-251. doi:10.1097/nnr.0000000000000036
- Btoush, R., & Campbell, J. C. (2009). Ethical conduct in intimate partner violence research: Challenges and strategies. *Nursing Outlook*, 57(4), 210-216. doi:10.1016/j.outlook.2008.10.005
- Campbell, J. C. (2004). Danger assessment. Retrieved from <http://www.dangerassessment.org>
- Campbell, J. C., Webster, D. W., & Glass, N. (2009). The danger assessment: Validation of a lethality risk assessment instrument for intimate partner femicide. *Journal of Interpersonal Violence*, 24(4), 653-674. doi:10.1177/0886260508317180
- Eden, K. B., Perrin, N. A., Hanson, G. C., Messing, J. T., Bloom, T. L., Campbell, J. C., . . . Glass, N. E. (2015). Use of online safety decision aid by abused women: Effect on decisional conflict in a randomized controlled trial. *American Journal of Preventative Medicine*, 48(4), 372-383. doi:10.1016/j.amepre.2014.09.027
- Ellsberg, M., & Heise, L. (2005). Researching violence against women: A practical guide

- for researchers and activists. Washington DC: World Health Organization
- Fontes, L. A. (2004). Ethics in violence against women research: The sensitive, the dangerous, and the overlooked. *Ethics and Behavior*, 14(2), 141-174.
doi:10.1207/s15327019eb1402_4
- Garabedian, L. F., Ross-Degnan, D., & Wharam, J. F. (2015). Mobile phone and smartphone technologies for diabetes care and self-management. *Current Diabetes Reports*, 15(12), 109. doi:10.1007/s11892-015-0680-8
- Gilbert, L., Goddard-Eckrich, D., Hunt, T., Ma, X., Chang, M., Rowe, J., . . . Shaw, S. A. (2016). Efficacy of a computerized intervention on HIV and intimate partner violence among substance-using women in community corrections: A randomized controlled trial. *American Journal of Public Health*, e1-e9.
doi:10.2105/ajph.2016.303119
- Glass, N., Clough, A., Case, J., Hanson, G., Barnes-Hoyt, J., Waterbury, A., . . . Perrin, N. (2015). A safety app to respond to dating violence for college women and their friends: The MyPlan study randomized controlled trial protocol. *BMC Public Health*, 15, 871. doi:10.1186/s12889-015-2191-6
- Griffin, M. G., Resick, P. A., Waldrop, A. E., & Mechanic, M. B. (2003). Participation in trauma research: Is there evidence of harm? *Journal of Trauma and Stress*, 16(3), 221-227. doi:10.1023/a:1023735821900
- The Health Insurance Portability and Accountability Act of 1996 (HIPAA) P.L. No. 104-191 C.F.R. (1996).
- Hegarty, K., Tarzia, L., Murray, E., Valpied, J., Humphreys, C., Taft, A., . . . Glass, N. (2015). Protocol for a randomised controlled trial of a web-based healthy

relationship tool and safety decision aid for women experiencing domestic violence (I-DECIDE). *BMC Public Health*, 15, 736. doi:10.1186/s12889-015-2072-z

Hussain, N., Sprague, S., Madden, K., Hussain, F. N., Pindiprolu, B., & Bhandari, M. (2015). A comparison of the types of screening tool administration methods used for the detection of intimate partner violence: A systematic review and meta-analysis. *Trauma Violence Abuse*, 16(1), 60-69. doi:10.1177/1524838013515759

Marcano Belisario, J. S., Jamsek, J., Huckvale, K., O'Donoghue, J., Morrison, C. P., & Car, J. (2015). Comparison of self-administered survey questionnaire responses collected using mobile apps versus other methods. *Cochrane Database Systematic Reviews*, 7, Mr000042. doi:10.1002/14651858.MR000042.pub2

Newman, E., & Kaloupek, D. G. (2004). The risks and benefits of participating in trauma-focused research studies. *Journal of Trauma and Stress*, 17(5), 383-394. doi:10.1023/B:JOTS.0000048951.02568.3a

Parker, B., & Ulrich, Y. (1990). A protocol of safety: Research on abuse of women. Nursing Research Consortium on Violence and Abuse. *Nursing Research*, 39(4), 248-250.

Pedroni, J., & D., K. (2001). A brief introduction to informed consent in research with human subjects. Bloomington, IN: The Trustees of Indiana University.

Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*. doi:10.1177/014662167700100306

Department of Health and Human Services (DHHS). (1991). 45 CFR 46. DHHS

regulations; Protection of Human Subjects. 46 Fed. Reg. 8386, 26 Jan 1981;
amended 56 Fed Reg. 28012, 28 June 1991.

Sullivan, C. M., & Cain, D. (2004). Ethical and safety considerations when obtaining information from or about battered women for research purposes. *Journal of Interpersonal Violence, 19*(5), 603-618. doi:10.1177/0886260504263249

Trautman, D. E., McCarthy, M. L., Miller, N., Campbell, J. C., & Kelen, G. D. (2007). Intimate partner violence and emergency department screening: Computerized screening versus usual care. *Annals of Emergency Medicine, 49*(4), 526-534. doi:10.1016/j.annemergmed.2006.11.022

Walker, E. A., Newman, E., Koss, M., & Bernstein, D. (1997). Does the study of victimization revictimize the victims? *General Hospital Psychiatry, 19*(6), 403-410.

Weber, B. A., Yarandi, H., Rowe, M. A., & Weber, J. P. (2005). A comparison study: Paper-based versus web-based data collection and management. *Applied Nursing Research, 18*(3), 182-185. doi:10.1016/j.apnr.2004.11.003

Yeater, E., Miller, G., Rinehart, J., & Nason, E. (2012). Trauma and sex surveys meet minimal risk standards: Implications for institutional review boards. *Psychological Science, 23*(7), 780-787. doi:10.1177/0956797611435131

Table 2.1

Participants' Responses to Safety Protocol Questions

	<i>n (%)</i>
IPV Resources List Request (<i>n</i>=31)	
Email copy	2 (6.5)
Paper copy	13 (41.9)
No copy	16 (51.6)
Share DA Risk with Provider (<i>n</i>=31)	
Yes	8 (25.8)
No	23 (74.2)
Suicide Risk Answer (<i>n</i>=17)	
I have my own healthcare provider, counselor, or other supportive person who I can call.	8 (47.1)
I can call the National Suicide Hotline at 1-800-273-TALK (1-800-273-8255) and talk to a confidential counselor over the phone.	1 (5.9)
I want a research assistant from the study to talk with me today.	1 (5.9)
I'm OK right now, but if it becomes a problem for me, I'll ask for help.	7 (41.2)
Share Suicide Risk with Provider (<i>n</i>=17)	
Yes	7 (41.2)
No	10 (58.8)

Note: IPV= intimate partner violence; DA=Danger Assessment.

CHAPTER THREE: MANUSCRIPT TWO

Impact of Intimate Partner Violence on Treatment Adherence and CD4 Cell Count of Women Living with HIV in an Urban Clinic Setting

Jocelyn C. Anderson, PhD(c), MSN, RN, FNE-A

Jacquelyn C. Campbell, PhD, RN, FAAN

Nancy E. Glass, PhD, MPH, RN, FAAN

Nancy Perrin, PhD

Michele R. Decker, ScD

Jason Farley, PhD, MPH, ANP-BC, FAAN, AACRN

Target Journal: AIDS Care

Abstract

The substance abuse, violence and HIV/AIDS (SAVA) syndemic represents a complex set of social determinants of health that impacts the lives of urban women. Specifically, there is growing evidence that intimate partner violence (IPV) places women at risk for both HIV acquisition and poorer HIV-related outcomes. This study assessed prevalence of IPV in an urban HIV clinic setting, as well as the associations between IPV, symptoms of depression and PTSD on three HIV-related outcomes—CD4 count, viral load, and missed clinic visits. In total, 239 adult women attending an HIV-specialty clinic were included. Fifty-one percent (95% CI: 45–58%) of women in this sample reported past year psychological, physical, or sexual intimate partner abuse. In unadjusted models, IPV was associated with having a CD4 count <200 (OR: 3.284, 95% CI: 1.251–8.619, $p=0.016$) and having a detectable viral load (OR: 1.842, 95% CI: 1.006–3.371, $p=0.048$). IPV was not associated with missing >25% of past year clinic visits (OR: 1.571, 95% CI: 0.937–2.633, $p=0.087$). In multivariable regression, controlling for substance use, mental health symptoms and demographic covariates, IPV remained associated with CD4 count <200 (OR: 3.536 95% CI: 1.114–11.224, $p=0.032$). Substance use and depression were both associated with missing >25% of past year clinic visits. The association between IPV and lower CD4 counts, but not adherence markers such as viral suppression and missed visits, indicates a need to examine potential physiologic impacts of trauma that may alter the immune functioning of women living with HIV. Incorporating trauma-informed approaches into current HIV care settings in one opportunity that begins to address IPV in this patient population.

Background

Despite improvements in the rates of testing and treatment for HIV, one in 10 patients living with HIV and on ART still have a detectable viral load (Centers for Disease Control [CDC], 2015). Women, and particularly urban racial and ethnic minority women, are increasingly affected by the HIV epidemic (CDC, 2015; UNAIDS, 2012). Various factors have been identified as being linked to increased risk of HIV acquisition among women who have experienced intimate partner violence (IPV) including, poorer mental health, substance abuse, ongoing sexual violence, increased frequency of sexually transmitted infections, and increased sexual risk behaviors (Campbell et al., 2008; Draughon, 2012; Jewkes, Dunkle, Nduna, & Shai, 2010). Relatively less has been examined regarding ways in which current or past IPV may impact long-term HIV treatment adherence or outcomes, although similar pathways have been proposed in the literature (Campbell, Lucea, Stockman, & Draughon, 2013; Schafer et al., 2012).

In 2013, the White House issued a report that acknowledged the importance of addressing the intersection of HIV and violence against women. This report highlighted the importance of gaining a greater understanding of the impact of violence on the health of women and girls living with or at risk for HIV (Interagency Federal Working Group, 2013). Subsequently, a 2015 meta-analysis found that women who reported experiencing IPV were less likely to report current anti-retroviral therapy (ART) use, had poorer self-reported ART adherence, and were less likely to report viral suppression (Hatcher, Smout, Turan, Christofides, & Stockl, 2015).

Partner violence is not the only social determinants of health shown to impact

HIV treatment adherence and outcomes among urban women. Syndemic theory, first introduced in 1994, has been used to frame studies examining a wide range of social and health-related factors that act together to impact HIV risk and treatment (Singer, 2009). Specifically, the substance abuse, violence and HIV/AIDS (SAVA) syndemic highlights the interconnected risks of these distinct risk factors (Singer, 1994, 1996, 2009). While proposed pathways linking IPV and poorer HIV treatment outcomes have focused on behavioral pathways including poorer mental health, substance use and decreased adherence to ART, limited testing of these proposed mediating effects has been published in the literature to date (Hatcher et al., 2015; Rose et al., 2010).

The purpose of this study was twofold: 1) to determine the prevalence of past year IPV among a sample of primarily African-American urban women attending an HIV specialty clinic, and 2) to examine the association between past year IPV and HIV treatment and adherence related outcomes including CD4 count, viral load, and missed clinic visits. Our a priori hypothesis was that past year IPV would negatively impact each of the three treatment and adherence markers, and that this relationship would be mediated through reported past month mental health symptoms associated with PTSD and depression.

Methods

Study Design

A cross-sectional, self-administered survey with associated medical record review was completed with consenting adult women who were patients at an urban HIV specialty clinic. Data were collected between March 2014 and November 2015.

Recruitment and Data Collection

Women were eligible to participate if they were at least 18 years of age, spoke English, were living with HIV, had been a patient at an urban HIV specialty clinic for at least the past one year, and reported being in an intimate relationship at some point during the past year. Participants could be referred to the study by a clinic provider, approach study staff directly at a designated research area in the clinic, or reach the research team through a phone number listed on flyers posted within the clinic.

After establishing eligibility, an oral consent script was reviewed with potential participants. Women had an opportunity to view the script and acknowledge consent via a secure study iPad. A trained and skilled interviewer was available in the clinic to accommodate participants who reported vision or literacy concerns with completing the survey items. This study was approved by the Johns Hopkins Medical Institutions (JHMI) Institutional Review Board. Participants were compensated with a \$10 gift card for their participation.

A total of 485 women approached the research team during this study's recruitment period (see Figure 3.1 for study flow diagram). Of those, 53% ($n=259$) were both eligible and consented to study participation; however, two participants declined to complete any study measures after consent. During review of medical records, 18 participants were excluded for reasons listed in Figure 3.1; this resulted in 239 women included in the final sample.

Measures

Collected demographic information included age, race, ethnicity, education level completed, employment, insurance status, and characteristics regarding their relationship (partner's gender, cohabitation).

Intimate partner violence. Standardized assessment of past year IPV included a four-question version of the Abuse Assessment Screen (AAS) which includes items for emotional, physical and sexual abuse as well as a fourth item about feeling unsafe in a relationship, and the 46-item Severity of Violence Against Women Scales (SVAWS) which includes items specific to abuse perpetrator behaviors across nine domains of violence including: symbolic violence; mild, moderate and serious threats of violence; mild, minor, moderate and serious physical violence; and sexual violence (Marshall, 1992; McFarlane, Parker, Soeken, & Bullock, 1992). All women were given the AAS and SVAWS. Both the AAS and the SVAWS have been used in diverse samples of women in the United States and globally (Anderson, Stockman, Sabri, Campbell, & Campbell, 2015; Antoniou et al., 2010; Laughon, Renker, Glass, & Parker, 2008; Reichenheim & Moraes, 2004). These scales were used in combination to determine past year IPV. Women who answered “yes” to any item on the AAS, or to having experienced any item in the moderate or severe violence categories on the SVAWS were classified as having experienced past year IPV.

CD4 count, viral load and missed clinic visits. Three primary outcomes were obtained by reviewing participants’ medical records. Most recent CD4 count and viral load were obtained from recorded laboratory values taken on or before the day of survey completion. These values were later dichotomized into clinically relevant groups (CD4 count ≥ 200 cells/mm³ or < 200 cells/mm³; viral load detectable [> 20 copies/ml] or not detectable [≤ 20 copies/ml]). The third outcome was the proportion of missed clinic visits in the past one year. This outcome was determined from the total number of scheduled visits to any outpatient clinic setting within the health system in the year prior to the

survey date and the corresponding number of missed visits. For analysis, the proportion of missed visits was dichotomized into two groups—missed $\leq 25\%$ of scheduled visits compared to missed $> 25\%$ of scheduled visits.

Mental health and substance use. Mental health symptoms and substance abuse were assessed using previously validated measures. The Center for Epidemiologic Studies Depression Scale (CES-D) and PTSD Checklist Civilian Version (PCL-C) were used to assess recent symptoms of depression during the past two weeks, and PTSD during the past one month (Blanchard, Jones-Alexander, Buckley, & Forneris, 1996; Radloff, 1977). Both scales, while initially developed and tested in Caucasian samples, have been widely used in more ethnically diverse samples (Anderson et al., 2015; Canady, Stommel, & Holzman, 2009; Norris & Hamblen, 2004). The Drug Abuse Screening Tool (DAST-10) and Alcohol Use Disorder Identification Test (AUDIT) were used to determine recent drug use within the past year, and alcohol use within the past six months (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001; Bohn, Babor, & Kranzler, 1995; Skinner, 1982). Standard cut-off scores were used for the CES-D (≥ 16), AUDIT (≥ 8) and PCL-C (≥ 45) (Babor et al., 2001; Radloff, 1977; Ruggiero, Del Ben, Scotti, & Rabalais, 2003). One item from the DAST-10 (“In the past year, have you used drugs other than those required for medical reasons?”) was used in combination with data from medical records review to create a composite variable of participants’ reported or provider documented illicit drug use in the past one year. All instruments demonstrated good reliability in this analysis with Cronbach’s alphas greater than 0.85 (CES-D: 0.96; PCL-C: 0.95; AUDIT: 0.88).

Data Analysis

Data were analyzed using SPSS Version 23 (IBM, 2014). Descriptive and exploratory data analysis was completed with all outcome variables, covariates and potential confounders (see Table 3.1). Bivariate analysis including chi-square and Mann Whitney U-tests were conducted to examine associations between demographic covariates, SAVA variables and potential confounders, and each of the three outcome variables. Multivariable logistic regression models that included demographic covariates associated with IPV or the selected outcome in bivariate analysis were then built. In all models, IPV, mental health, and substance use covariates were included. For the CD4 count and viral load outcomes, analysis was limited to those participants who were prescribed ART within the one-year prior to the survey, while missed visits were calculated for all women for whom complete data was readily available. To account for variation in the number of scheduled visits, a categorical variable for number of past year scheduled visits was included in the regression analysis for the missed visits outcome.

Results

The sample was primarily African-American (86.6%) and non-Hispanic (94.5%) women with a median age of 50 (IQR: 44–55). Over half of the women (58%) had completed high school or obtained a GED. While we did not include direct income measures, insight regarding socioeconomic status can be gleaned from the overwhelming majority of participants that relied on public insurance including Medicare, Medicaid or Ryan White funding (96.7%) and the low rate of employment (12.6%). Additional demographic data is presented in Table 3.1.

IPV, Mental Health Symptoms, and Substance Abuse

Over half of the sample participants ($n=122$, 51%, 95% CI: 45–58%) reported

past year physical, sexual or psychological IPV. Nearly all women reporting IPV ($n=119$, 97.5%, 95% CI: 95–100%) reported psychological abuse, with a similar proportion reporting physical violence ($n=110$, 90.1%, 95% CI: 85–96%). Fewer women ($n=51$, 41.8%, 95% CI: 33–51%) reported sexual violence (see Figure 3.2).

Approximately one in four women reported depression symptoms meeting the CES-D cut off score for clinical significance (27%, 95% CI: 21–33%) and a similar proportion reported clinically significant PTSD symptoms (24%, 95% CI: 18–29%), while 16% of women reported symptoms of both PTSD and depression. In bivariate analysis, past year IPV was independently associated with past month PTSD symptoms and past two week depression symptoms, past year drug use and past year alcohol abuse (see Table 3.1).

Associations with CD4 Count, Viral Suppression, and Missed Visits

From medical record reviews, the majority of women had well-controlled HIV disease with 10% ($n=25$) having a most recent CD4 count <200 (95% CI: 4–14%). Almost one-third of women ($n=71$) had detectable viral loads (30%, 95% CI: 24–36%). Only fifteen women (6%) had both a detectable viral load and CD4 count less than 200. Over half (57%) of women missed 25% or more of their scheduled visits in the year prior to their survey date (95% CI: 51–64%). The number of scheduled clinic visits in one year had a wide range (1–358 scheduled visits) related to the health system’s inclusion of programs for clinic patients such as daily methadone maintenance treatment, which substantially increased the number of scheduled visits for some participants. The median number of annual scheduled visits was 26 (IQR: 16–41), and the median number of missed visits in the past year was 7 (IQR: 3–13). Proportion of missed visits for participants ranged from zero to 84% with a median of 29.6% missed scheduled visits

(IQR: 16.67–43.33%).

When examining associations between IPV and each of the outcome variables, CD4 count <200 (OR: 3.284, 95% CI: 1.251–8.619, $p=0.016$) and detectable viral load (OR: 1.842, 95% CI: 1.006–3.371, $p=0.048$) were both associated with past year IPV (See Tables 3.2 and 3.3), indicating that women who had experienced past year IPV were approximately three times more likely to have a low CD4 count and nearly two times more likely to have a detectable viral load. The missed clinic visit outcome was not associated with past year IPV (Table 3.4). PTSD symptoms were not associated with any of the three outcome variables in bivariate analysis, and depression was associated only with missing >25% of clinic visits (OR: 2.357, 95% CI: 1.266–4.386, $p=0.007$) not CD4 count or viral load measures (Tables 3.2–3.4). When demographic, mental health and substance abuse covariates were added to the regression models (Tables 3.2–3.4), past year IPV maintained significant association to CD4 count outcome (OR: 3.536, 95% CI: 1.114–11.224, $p=0.032$), but not the detectable viral load outcome (OR: 1.699, 95% CI: 0.859–3.363, $p=0.128$). In addition to past year IPV, having a detectable viral load was associated with having a CD4 count less than 200. Age and education were both associated with improved outcomes in the final viral load model. Having graduated from high school decreased the odds of having a detectable viral load by 63% (OR: 0.367, 95% CI: 0.185–0.728, $p=0.004$) and women in the 45–55 and 56 and older age groups having progressively lower odds of having a detectable viral load. Both past year drug use (OR: 2.826, 95% CI: 1.525–5.236, $p=0.001$) and depressive symptoms (OR: 2.330, 95% CI: 1.012–5.362, $p=0.047$) showed a significant association with missing more than one-quarter of the scheduled clinic visits.

Discussion

Intimate partner violence is associated with a myriad of poorer health issues among women living with HIV. The finding that past year IPV was an independent predictor of CD4 count when adjusting for mental health and substance abuse covariates adds to the current body of knowledge regarding both the impact of IPV on HIV adherence and care. Previous studies have demonstrated the relationship between IPV and lower rates of ART use and viral suppression; however, the relationship between past year IPV and lower CD4 count was not replicated with the adherence measures viral load or missed scheduled visit outcomes (Machtinger, Haberer, Wilson, & Weiss, 2012; Schafer et al., 2012; Siemieniuk et al., 2013). While much of the published literature focuses on the behavioral impact of IPV on adherence to care—through mental health symptoms, perpetrator interference, and increased risk-taking behaviors, our results seem to indicate that additional physiologic mechanisms, such as immune and inflammatory processes related to stress, should be considered (Campbell et al., 2013; Siyahhan Julnes et al., 2016). Prior researchers examining biologic stress in women who have experienced IPV have shown alterations in the inflammatory and immune system markers (Garcia-Linares, Sanchez-Lorente, Coe, & Martinez, 2004; Out, Hall, Granger, Page, & Woods, 2012; Sanchez-Lorente, Blasco-Ros, Coe, & Martinez, 2010; Shafran et al., 1996). Even more recently, IPV has been linked to changes in telomere length—showing the potential impact of IPV at the level of an individual's DNA (Humphreys et al., 2012). This finding supports placing HIV disease progression to the list of chronic health conditions impacted by trauma exposure, and raises additional questions about the effects of IPV on inflammatory and immune responses.

Our results also highlighted the impact of IPV on both physical and mental health outcomes on women living with HIV. Higher rates of reported depressive and PTSD symptoms were reported by women who reported recent IPV; however, contrary to previous work in which depression and PTSD have been associated with altered immune function and increased morbidity and mortality among patients living with HIV, in our sample these mental health symptoms were not associated with measured laboratory outcomes (viral load and CD4 count) (Chander, Himelhoch, & Moore, 2006; Cruess et al., 2003; Leserman, 2003; Machtinger et al., 2012; Siyahhan Julnes et al., 2016). Multiple factors may have contributed to the lack of significance of this relationship in our results, primarily sample size and the use of CD4 count as the only measure of immune function. Assessment of additional biomarkers and a more diverse sample in terms of past trauma experiences and rate of PTSD may provide more insight into that relationship. The missed visit outcome did show a stronger tendency to be impacted by traditional behavioral covariates, with depression and past year drug use being associated with missing more than 25% of clinic visits. Improved treatment for substance abuse and depression may result in improved HIV care adherence and downstream outcomes. While these findings may appear disparate, they highlight the challenges of statistically assessing the myriad of bidirectional associations between trauma, mental health, substance abuse, medication adherence, and immune system functioning.

This study also found that past year IPV rates were higher in this sample than previously reported in the same urban clinic setting—51% versus 26.5% (Illangasekare et al., 2012). This is likely related to differences in the chosen definition and measurement of IPV used in this study compared to the prior estimate. Women were allowed to self-

identify their partner status and were not required to report being married or co-habiting in this study, but rather in a relationship (i.e., married, dating, living together, hooking up). This definition likely increased the number of women who reported being partnered in the past year. Similarly, we included measures of psychological abuse and physical and sexual violence in order to holistically capture the spectrum of women's experiences. This is in contrast to a previously reported study conducted in the clinic that included only one tool consisting of three items, the Partner Violence Screen (Feldhaus et al., 1997; Illangasekare et al., 2012). Women were also informed of this study's focus on relationships and violence during the consent process, possibly raising their sensitivity to the issue. This may suggest that the standard clinical screening methods for assessing IPV exposure may be less sensitive in this setting, and that modifications of these instruments to include specific behavioral cues may be needed to assess for IPV in the urban clinic environment.

Limitations

Cross-sectional, self-reported data limits any inferences regarding causation. Particularly with regards to measuring both CD4 count and viral load at only one time point, it is not possible to determine whether the overall trajectory of a participants' HIV disease was improving or deteriorating, and whether the rate of improvement or deterioration was consistent with what would be expected based on their time since diagnosis, length of time on ART and length of time since achieving virologic suppression. Women who entered care at a late stage in their disease process may have a stable CD4 count <200 despite being adherent to ART and virally suppressed. In order to further assess these relationships, multiple data points are necessary.

Additionally, the time frame of instruments varied from past two weeks (CES-D) to the past year (IPV measures, DAST-10). Use of the same one-year time frame for both IPV and drug use limited the ability to assess substance use as a potential mediator between IPV and the HIV treatment outcomes. However, the syndemic framework would suggest that these relationships are more complex and cyclical than they are unidirectional and linear. Reliance on these survey measures also introduces opportunities for recall and social desirability bias. Participant-entered electronic data collection and clear discussion of the separation of the research data from clinical data during the consent process were utilized to minimize social desirability bias.

While all three outcomes examined in this analysis were collected from medical records, the possibility of measurement issues still exists. Abstracted CD4 count and viral load measurements were obtained from the day of the survey or the closest measurement recorded prior to the survey date. In most cases these values were from within the one-year timeframe of the IPV survey variable (94% of CD4 count measures and 96% of viral load measures), however a small number of participants laboratory measures were from outside this timeframe. Additionally, while we were able to include a large number of scheduled clinic visits, we were limited to having access to only one health system's records and it is entirely conceivable that participants sought care at other medical facilities that we were not able to capture. The decision to include all clinic visits types also introduces potential bias as attendance at HIV clinic visits is likely to impact HIV care differently than intermittent specialty visits (such as neurology or gynecology) or long-term substance abuse treatment or mental health visits.

A variety of other life stressors and traumas were outside the scope of this study,

but have similar theoretical links to negative biologic outcomes related to chronic stress response. It is likely that with our urban sample, there is a great deal of trauma history among this study's participants that we were not able to measure, including childhood trauma, community violence and incarceration. Given the likelihood of repeated or ongoing violence in the lives of the study participants, it is important to note that while 51% reported an experience that was classified as past year IPV, they may not recognize or identify these behaviors as problematic or of importance to their health. A trauma-informed approach to identification, treatment, care, and referral for current and lifetime IPV should include specific behavioral questions, not simply a general question about having experienced IPV (Substance Abuse and Mental Health Service Administration [SAMHSA], 2015; Machtinger, Cuca, Khanna, Rose, & Kimberg, 2015). Similarly, the complexity of issues faced by many of the participants related to substance use, mental health, violence and poverty presents challenges to those designing interventions. This study's results suggest that addressing substance use and mental health symptoms may improve adherence to scheduled visits, but not necessarily influence laboratory treatment markers. The relationships of younger age, less education, and a detectable viral load indicate that there may be a gap in knowledge or "learning curve" involved in establishing adherence as a priority (Blank et al., 2015). Interventions with an emphasis on education and the importance of medication adherence and attending scheduled visits for long-term health, especially with younger women with limited education, may provide benefits to reduced viral load levels and overall adherence to care.

Research Implications

This is one of the first studies to find a relationship between IPV and CD4 counts;

additional research is needed to further examine this relationship (Rose et al., 2010; Schafer et al., 2012). Future studies should include longitudinal assessment of both IPV and biologic measures—both clinical markers and inflammatory stress markers.

Particular attention to identifying specific biologic mechanisms such as chronic stress and alterations in the hypothalamus-pituitary-adrenal axis or epigenetic changes as a result of violence which may have downstream effects on immune functioning in HIV patients (Keeshin, Cronholm, & Strawn, 2012; Siyahhan Julnes et al., 2016).

Assessment of interventions to address adherence to HIV treatment among urban women should include attention to multiple factors from a trauma-informed perspective (SAMHSA, 2015; Machtinger, Cuca, et al., 2015). Behavioral interventions such as Dating Matters® and Sister to Sister have been used to address concurrent risk HIV and IPV risk in young women, and may be useful as a model to address healthy relationships and relationship violence in an HIV context (Jemmott, Jemmott & O’Leary, 2007; Tharp et al., 2011).

Clinical Implications

This study’s results add to the growing literature regarding HIV care outcomes for women experiencing violence. Previous work has shown IPV to be associated with a lower likelihood of being prescribed and adhering to ART, while our findings suggest that additional biologic mechanisms may also be contributing to poor HIV outcomes among women. Despite widespread support and recommendations from professional and regulatory organizations, universal screening for IPV is not consistently implemented in HIV care settings. Trauma-informed programs, which include raising awareness of the relationship between IPV and health, confidential and non-judgmental questions about

experiences of psychological abuse, physical and sexual violence, harm reduction, safety planning and referrals to community partners and advocates integrated in all levels of clinical services, is essential in the urban clinic environment in which multiple medical and social factors are impacting patients health and well-being (Machtinger, Cuca, et al., 2015; Machtinger, Lavin, et al., 2015). This becomes particularly important given our results and those of similar work examining the impact of broader trauma experiences and PTSD on immune and inflammatory markers on patients living with HIV, as patients may be virally suppressed and still experiencing immune dysfunction as a result of trauma-related factors (Siyahhan Julnes et al., 2016).

Syndemic models demand that in order to intervene or promote change in one area of the syndemic, full attention must be paid to the other aspects. While this study found a relationship between IPV and the CD4 count outcome, it is important to note how the findings from the viral load and missed visit outcomes can be viewed through a syndemic lens and in conjunction with previous work conducted regarding IPV, entry to care, and medication adherence. The missed visit outcome showed significant relationships between both symptoms of depression and past year drug use, and recent work examining PTSD found links to immune and inflammatory biomarkers in a sample of virally suppressed patients living with HIV (Siyahhan Julnes et al., 2016). These multiple health and social problems, such as violence, HIV, and poverty act synergistically to create a greater negative impact on health than would otherwise be expected from the disease process alone. Thus, each of these factors in turn will have a negative downstream impact on women's health. The study clinic has already integrated mental health and substance abuse treatment programs into its medical home model,

however, violence screening and intervention are not as readily available. In addition to implementing universal education with a focus on the impact of violence and trauma on health in HIV care settings, addressing IPV and trauma history through community referrals to appropriate advocates and programs is one area in which attention may be useful. Developing or strengthening partnerships with community resources and incorporating trauma-informed mental health, substance abuse and violence services into standard HIV care presents an opportunity to address these issues of utmost importance to patients' health and well-being.

Conclusions

This study's findings support both biologic and behavioral pathways through which IPV can impact women's HIV care and outcomes. While the cumulative impact of IPV and other lifetime experiences of trauma on the immune system are not yet fully known, additional research is needed to further examine the multiple physiologic pathways that may contribute to increased risk of low CD4 count in these women. With a better understanding of the specific biologic changes and timelines in which their impacts are realized, we may begin to examine methods and opportunities for interrupting these changes and developing biobehavioral interventions to address IPV in the context of HIV and other SAVA syndemic factors such as substance use and mental health. The high prevalence of IPV and its impact on CD4 counts also demands close attention to identifying and addressing ongoing sources of violence in patients' lives in order to fully address the disparities in HIV care among women.

References

- Anderson, J. C., Stockman, J. K., Sabri, B., Campbell, D. W., & Campbell, J. C. (2015). Injury outcomes in African American and African Caribbean women: The role of intimate partner violence. *Journal of Emergency Nursing, 41*(1), 36-42.
doi:10.1016/j.jen.2014.01.015
- Antoniou, E., Ioannidi-Kapolou, E., Daglas, M., Vivilaki, V., Karamitros, D., Dafermos, G., & Iatrakis, V. (2010). Abuse assessment screen (AAS) questionnaire: The Greek validation. *Clinical Expert in Obstetrics and Gynecology, 37*(4), 313-316.
- Babor, T. F., Higgins-Biddle, J. C., Saunders, J. B., & Monteiro, M. G. (2001). The alcohol use disorders identification test guidelines for use in primary care. Geneva: World Health Organization.
- Blanchard, E. B., Jones-Alexander, J., Buckley, T. C., & Forneris, C. A. (1996). Psychometric properties of the PTSD checklist (PCL). *Behaviour Research and Therapy, 34*(8), 669-673. doi:0005-7967(96)00033-2 [pii]
- Bohn, M. J., Babor, T. F., & Kranzler, H. R. (1995). The alcohol use disorders identification test (AUDIT): Validation of a screening instrument for use in medical settings. *Journal of Studies on Alcohol, 56*(4), 423-432.
- Campbell, J. C., Baty, M. L., Ghandour, R. M., Stockman, J. K., Francisco, L., & Wagman, J. (2008). The intersection of intimate partner violence against women and HIV/AIDS: A review. *International Journal of Injury Control and Safety Promotion, 15*(4), 221-231. doi:10.1080/17457300802423224
- Campbell, J. C., Lucea, M. B., Stockman, J. K., & Draughon, J. E. (2013). Forced sex and HIV risk in violent relationships. *American Journal of Reproductive*

Immunology, 69 Suppl 1, 41-44. doi:10.1111/aji.12026

Canady, R. B., Stommel, M., & Holzman, C. (2009). Measurement properties of the centers for epidemiological studies depression scale (CES-D) in a sample of African American and non-Hispanic White pregnant women. *Journal of Nursing Measurement*, 17(2), 91-104.

Centers for Disease Control and Prevention. (2015). HIV Surveillance Report 2015. Atlanta, GA: Author.

Chander, G., Himelhoch, S., & Moore, R. D. (2006). Substance abuse and psychiatric disorders in HIV-positive patients: Epidemiology and impact on antiretroviral therapy. *Drugs*, 66(6), 769-789.

Cruess, D. G., Petitto, J. M., Leserman, J., Douglas, S. D., Gettes, D. R., Ten Have, T. R., & Evans, D. L. (2003). Depression and HIV infection: Impact on immune function and disease progression. *CNS Spectrum*, 8(1), 52-58.

Draughon, J. E. (2012). Sexual assault injuries and increased risk of HIV transmission. *Advanced Emergency Nursing Journal*, 34(1), 82-87.

doi:10.1097/TME.0b013e3182439e1a

Feldhaus, K. M., Koziol-McLain, J., Amsbury, H. L., Norton, I. M., Lowenstein, S. R., & Abbott, J. T. (1997). Accuracy of 3 brief screening questions for detecting partner violence in the emergency department. *Journal of the American Medical Association*, 277(17), 1357-1361.

Garcia-Linares, M. I., Sanchez-Lorente, S., Coe, C. L., & Martinez, M. (2004). Intimate male partner violence impairs immune control over herpes simplex virus type 1 in physically and psychologically abused women. *Psychosomatic Medicine*, 66(6),

965-972. doi:10.1097/01.psy.0000145820.90041.c0

Hatcher, A. M., Smout, E. M., Turan, J. M., Christofides, N., & Stockl, H. (2015).

Intimate partner violence and engagement in HIV care and treatment among women: A systematic review and meta-analysis. *AIDS*, 29(16), 2183-2194.

doi:10.1097/QAD.0000000000000842

Humphreys, J., Epel, E. S., Cooper, B. A., Lin, J., Blackburn, E. H., & Lee, K. A. (2012).

Telomere shortening in formerly abused and never abused women. *Biological Research for Nursing*, 14(2), 115-123.

doi:10.1177/10998004113984791099800411398479 [pii]

IBM. (2014). IBM SPSS Statistics for Windows (Version 23.0). Armonk, NY: IBM Corporation.

Illangasekare, S., Tello, M., Hutton, H., Moore, R., Anderson, J., Baron, J., & Chander, G. (2012).

Clinical and mental health correlates and risk factors for intimate partner violence among HIV-positive women in an inner-city HIV clinic.

Women's Health Issues, 22(6), e563-569. doi:10.1016/j.whi.2012.07.007

Interagency Federal Working Group (2013). Addressing the Intersection of HIV/AIDS

Violence Against Women and Girls and Gender-Related Health Disparities.

Washington, DC: The White House.

Jemmott, L. S., Jemmott, J. B., 3rd, & O'Leary, A. (2007). Effects on sexual risk behavior

and STD rate of brief HIV/STD prevention interventions for African American women in primary care settings. *American Journal of Public Health*, 97(6), 1034-

1040. doi:10.2105/AJPH.2003.020271

Jewkes, R. K., Dunkle, K., Nduna, M., & Shai, N. (2010). Intimate partner violence,

- relationship power inequity, and incidence of HIV infection in young women in South Africa: A cohort study. *Lancet*, 376(9734), 41-48. doi:S0140-6736(10)60548-X [pii] 10.1016/S0140-6736(10)60548-X
- Joint United Nations Program on HIV/AIDS (UNAIDS), (2012). Global Report: UNAIDS report on the global AIDS epidemic 2010. Geneva: Author.
- Keeshin, B. R., Cronholm, P. F., & Strawn, J. R. (2012). Physiologic changes associated with violence and abuse exposure: An examination of related medical conditions. *Trauma Violence Abuse*, 13(1), 41-56. doi:10.1177/1524838011426152
- Laughon, K., Renker, P., Glass, N., & Parker, B. (2008). Revision of the abuse assessment screen to address nonlethal strangulation. *Journal of Obstetric Gynecologic and Neonatal Nursing*, 37(4), 502-507. doi:10.1111/j.1552-6909.2008.00268.x
- Leserman, J. (2003). HIV disease progression: Depression, stress, and possible mechanisms. *Biological Psychiatry*, 54(3), 295-306. doi:S0006322303003238
- Machtinger, E. L., Cuca, Y. P., Khanna, N., Rose, C. D., & Kimberg, L. S. (2015). From treatment to healing: The promise of trauma-informed primary care. *Women's Health Issues*, 25(3), 193-197. doi:10.1016/j.whi.2015.03.008
- Machtinger, E. L., Haberer, J. E., Wilson, T. C., & Weiss, D. S. (2012). Recent trauma is associated with antiretroviral failure and HIV transmission risk behavior among HIV-positive women and female-identified transgenders. *AIDS and Behavior*, 16(8), 2160-2170. doi:10.1007/s10461-012-0158-5
- Machtinger, E. L., Lavin, S. M., Hilliard, S., Jones, R., Haberer, J. E., Capito, K., & Dawson-Rose, C. (2015). An expressive therapy group disclosure intervention for

- women living with HIV improves social support, self-efficacy, and the safety and quality of relationships: A qualitative analysis. *Journal of the Association of Nurses in AIDS Care*, 26(2), 187-198. doi:10.1016/j.jana.2014.05.001
- Marshall, L. L. (1992). Development of the severity of violence against women scales. *Journal of Family Violence*, 7(2), 103-121.
- McFarlane, J., Parker, B., Soeken, K., & Bullock, L. (1992). Assessing for abuse during pregnancy. Severity and frequency of injuries and associated entry into prenatal care. *Journal of the American Medical Association*, 267(23), 3176-3178.
- Micallef, L., & Rodgers, P. (2014). eulerAPE: drawing area-proportional 3-Venn diagrams using ellipses. *PLoS One*, 9(7), e101717.
doi:10.1371/journal.pone.0101717
- Norris, F. H., & Hamblen, J. L. (2004). Standardized self-report measures of civilian trauma and PTSD. In J.P. Wilson, T. M. Keane, and T. Martin (Eds.), *Assessing psychological trauma and PTSD* (pp. 63-102). New York: Guilford Press.
- Out, D., Hall, R. J., Granger, D. A., Page, G. G., & Woods, S. J. (2012). Assessing salivary C-reactive protein: Longitudinal associations with systemic inflammation and cardiovascular disease risk in women exposed to intimate partner violence. *Brain Behavior and Immunity*, 26(4), 543-551. doi:10.1016/j.bbi.2012.01.019
- Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*.
doi:10.1177/014662167700100306
- Reichenheim, M. E., & Moraes, C. L. (2004). Comparison between the abuse assessment screen and the revised conflict tactics scales for measuring physical violence

- during pregnancy. *Journal of Epidemiology and Community Health*, 58(6), 523-527.
- Rose, R. C., House, A., S., & Stepleman, L. M. (2010). Intimate partner violence and its effects on the health of African American HIV-positive women. *Psychological Trauma: Theory, Research, Practice and Policy*, 2(4) 311-317.
- Ruggiero, K. J., Del Ben, K., Scotti, J. R., & Rabalais, A. E. (2003). Psychometric properties of the PTSD checklist-civilian version. *Journal of Trauma and Stress*, 16(5), 495-502. doi:10.1023/A:1025714729117
- Sanchez-Lorente, S., Blasco-Ros, C., Coe, C. L., & Martinez, M. (2010). Recovery of immune control over herpes simplex virus type 1 in female victims of intimate partner violence. *Psychosomatic Medicine*, 72(1), 97-106.
doi:10.1097/PSY.0b013e3181c5080a
- Schafer, K. R., Brant, J., Gupta, S., Thorpe, J., Winstead-Derlega, C., Pinkerton, R., . . . Dillingham, R. (2012). Intimate partner violence: A predictor of worse HIV outcomes and engagement in care. *AIDS Patient Care and STDS*, 26(6), 356-365.
doi:10.1089/apc.2011.0409
- Shafran, S. D., Singer, J., Zarowny, D. P., Phillips, P., Salit, I., Walmsley, S. L., . . . Tsoukas, C. M. (1996). A comparison of two regimens for the treatment of mycobacterium avium complex bacteremia in AIDS: rifabutin, ethambutol, and clarithromycin versus rifampin, ethambutol, clofazimine, and ciprofloxacin. Canadian HIV Trials Network Protocol 010 Study Group. *New England Journal of Medicine*, 335(6), 377-383. doi:10.1056/NEJM199608083350602
- Siemieniuk, R. A., Krentz, H. B., Miller, P., Woodman, K., Ko, K., & Gill, M. J. (2013).

- The clinical implications of high rates of intimate partner violence against HIV-positive women. *Journal of Acquired Immune Deficiency Syndrome*, 64(1), 32-38. doi:10.1097/QAI.0b013e31829bb007
- Singer, M. (1994). AIDS and the health crisis of the U.S. urban poor: The perspective of critical medical anthropology. *Social Science & Medicine*, 39(7), 931-948.
- Singer, M. (1996). A dose of drugs, a touch of violence, a case of AIDS: Conceptualizing the SAVA syndemic. *Free Inquiry in Creative Sociology*, 24(2), 99-110.
- Singer, M. (2009). *Introduction to syndemics: A systems approach to public and community health*. San Francisco, CA: Jossey-Bass.
- Siyahhan Julnes, P., Auh, S., Krakora, R., Withers, K., Nora, D., Matthews, L., . . . Kapetanovic, S. (2016). The association between post-traumatic stress disorder and markers of inflammation and immune activation in HIV-infected individuals with controlled viremia. *Psychosomatics*. doi:10.1016/j.psych.2016.02.015
- Skinner, H. A. (1982). The drug abuse screening test. *Addictive Behaviors*, 7(4), 363-371.
- Substance Abuse and Mental Health Services Administration (SAMHSA), (2015). *Trauma-informed approach and trauma-specific interventions*. Washington, DC: Author.
- Tharp, A. T., Burton, T., Freire, K., Hall, D. M., Harrier, S., Latzman, N. E., . . . Vagi, K. J. (2011). Dating matters: Strategies to promote healthy teen relationships. *Journal of Women's Health*, 20(12), 1761-1765. doi:10.1089/jwh.2011.3177

Table 3.1

Participant Demographics by Past Year IPV Status

	Overall ^c (n=239)	IPV + ^c (n=122)	IPV – ^c (n=117)	p value*
Age ^d (range 24-66)	50 (44-55)	50 (43-55)	52 (44-56)	0.175
Race				0.623
Native American	2 (0.8)	2 (1.6)	0 (0)	
Black/African American	207 (86.6)	106 (86.9)	101 (86.3)	
White/Caucasian	9 (3.8)	5 (4.1)	4 (3.4)	
Multiple races/mixed/other	10 (4.2)	4 (3.3)	6 (5.1)	
Did not respond	11 (4.6)	5 (4.1)	6 (5.1)	
Hispanic (n=229)	3 (1.3)	2 (1.7)	1 (0.9)	0.587
Education (n=236)				0.050
8 th grade or less	22 (9.2)	18 (14.8)	4 (3.4)	
Some high school	77 (32.2)	42 (34.4)	35 (29.9)	
High school diploma/GED	81 (33.9)	35 (28.7)	46 (39.3)	
Some college	40 (16.7)	21 (17.2)	19 (16.2)	
Associate's/vocational degree	9 (3.8)	3 (2.5)	6 (5.1)	
Bachelor's/4 year degree	6 (2.5)	2 (1.6)	4 (3.4)	
Graduate Work/Degree	1 (0.4)	0 (0)	1 (0.9)	
Insurance type				0.436
Public	231 (96.7)	119 (97.5)	112 (95.7)	
Private	8 (3.3)	3 (2.5)	5 (4.3)	
Children under 18				0.752
Yes	49 (20.5)	26 (21.3)	23 (19.7)	
No	190 (79.5)	96 (78.7)	94 (80.3)	
Employed	30 (12.6)	9 (7.4)	21 (17.9)	0.014
CES-D ≥16 (n=237)	64 (27.0)	48 (39.3)	16 (13.9)	<0.001
PCL ≥45 (n=237)	56 (23.6)	41 (33.6)	15 (13.0)	<0.001
Past Year Drug Use ^b	120 (50.2)	69 (56.6)	51 (43.6)	0.045
AUDIT ≥8 (n=237)	45 (19.0)	32 (26.2)	13 (11.3)	0.003

Notes: Items in bold were statistically significant. IPV: intimate partner violence; CES-D: Center for Epidemiologic Centers Scales – Depression; PCL: post-traumatic checklist; AUDIT: Alcohol Use Disorders Identification Test.

^a p-values are for chi-square analysis examining differences between women reporting past year IPV and those not reporting past year IPV, except Age in which differences were assessed and reported using Mann Whitney U-tests.

^b Reported on survey or documented in medical records.

^c n (%)

^d median (IQR)

Table 3.2

Logistic Regression Models for CD4 Cell Count <200cell/mm³

	CD4<200 <i>n</i> (%) ^a <i>n</i> =24	CD4 ≥200 <i>n</i> (%) ^a <i>n</i> =199	OR ^b (95% CI)	p-value	aOR ^c (95% CI) <i>n</i> =219	p-value
Past Year IPV						
No	6 (25)	104 (52)	Ref	-	Ref	-
Yes	18 (75)	95 (48)	3.284 (1.251-8.619)	0.016	3.536 (1.114-11.224)	0.032
Age						
18-35	3 (12)	12 (6)	Ref	-	Ref	-
36-45	8 (33)	40 (20)	0.800 (0.183-3.498)	0.767	0.958 (0.130-7.060)	0.966
46-55	6 (25)	99 (50)	0.242 (0.054-1.097)	0.066	0.363(0.054-2.441)	0.297
56 and older	7 (29)	48 (24)	0.583(0.131-2.596)	0.479	1.206 (0.173-8.400)	0.850
Employment Status						
Unemployed	20 (83)	175 (88)	Ref	-	Ref	-
Employed	4 (17)	24 (12)	1.458 (0.459-4.630)	0.522	3.174 (0.690-14.599)	0.138
Level of Education [n=221]						
< HS graduation	9 (38)	85 (43)	Ref	-	Ref	-
HS graduation or beyond	15 (63)	112 (57)	1.265 (0.528-3.029)	0.598	2.415 (0.793-7.355)	0.121
Alcohol Abuse [n=221]						
AUDIT <8	17 (71)	163 (83)	Ref	-	Ref	-
AUDIT ≥8	7 (29)	34 (17)	1.974 (0.760-5.128)	0.163	1.187(0.352-4.002)	0.782
Past Year Drug Use						
No	8 (33)	106 (53)				
Yes	16 (67)	93 (47)	2.280 (0.933-5.569)	0.071	2.377(0.764-7.398)	0.135

PTSD [n=221]						
PCL<45	17 (71)	157 (80)	Ref	-	Ref	-
PCL ≥45	7 (29)	40 (20)	1.161 (0.627-4.163)	0.320	1.261(0.357-4.462)	0.719
Depression [n=221]						
CES-D<16	16 (67)	148 (75)	Ref	-	Ref	-
CES-D ≥16	8 (33)	49 (25)	1.510 (0.609-3.745)	0.374	1.055 (0.298-3.731)	0.934
Viral Suppression						
Undetectable VL	10 (42)	153 (77)	Ref	-	Ref	-
Detectable VL	14 (58)	46 (23)	4.657 (1.939-11.180)	0.001	5.901 (2.066-16.849)	0.001

Notes: Items in bold were statistically significant. IPV: intimate partner violence; CES-D: Center for Epidemiologic Centers Scales – Depression; PCL: post-traumatic checklist; AUDIT: Alcohol Use Disorders Identification Test; Ref=reference category; n=219 women prescribed anti-retroviral therapy and with complete survey data for all included covariates.

^a column %

^b bivariate associations

^c adjusted for displayed covariates

Table 3.3

Logistic Regression Models for Detectable Viral Load

	VL detectable <i>n</i> (%) ^a <i>n</i> =60	VL not detectable <i>n</i> (%) ^a <i>n</i> =163	OR ^b (95% CI)	p value	aOR ^c (95% CI) <i>n</i> =219	p value
Past Year IPV						
No	23 (38)	87 (53)	Ref	-	Ref	-
Yes	37 (62)	76 (47)	1.842 (1.006-3.371)	0.048	1.699 (0.859-3.363)	0.128
Age						
18-35	6 (10)	9 (6)	Ref	-	Ref	-
36-45	19 (32)	29 (18)	0.983(0.301-3.211)	0.977	0.293(0.069-1.250)	0.097
46-55	26 (43)	79 (49)	0.494(0.160-1.519)	0.218	0.168(0.042-0.664)	0.011
56 and older	9 (15)	46 (28)	0.293(0.084-1.030)	0.056	0.118(0.027-0.524)	0.005
Employment Status						
Unemployed	56 (93)	139 (85)	Ref	-	Ref	-
Employed	4 (7)	24 (15)	0.414(0.137-1.247)	0.117	0.435 (0.121-1.567)	0.203
Level of Education [n=221]						
< HS graduation	36 (60)	58 (36)	Ref	-	Ref	-
HS graduation or beyond	24 (40)	103 (64)	0.375(0.204-0.690)	0.002	0.367(0.185-0.728)	0.004
Alcohol Abuse [n=221]						
AUDIT <8	45 (76)	135 (83)	Ref	-	Ref	-
AUDIT ≥8	14 (24)	27 (17)	1.556(0.751-3.223)	0.234	1.356(0.575-3.196)	0.487
Past Year Drug Use						
No	24 (41)	88 (54)	Ref	-	Ref	-
Yes	35 (58)	74 (45)	1.684(0.925-3.064)	0.088	1.587 (0.782-3.222)	0.201

PTSD [n=221]							
PCL<45	47 (78)	127 (78)	Ref	-	Ref	-	
PCL ≥45	12 (20)	35 (22)	0.926(0.444-1.934)	0.839	0.558(0.218-1.430)	0.224	
Depression [n=221]							
CES-D<16	44 (75)	120 (74)	Ref	-	Ref	-	
CES-D ≥16	15 (25)	42 (26)	0.974(0.492-1.929)	0.940	0.642(0.268-1.537)	0.320	

Notes: Items in bold were statistically significant. IPV: intimate partner violence; CES-D: Center for Epidemiologic Centers Scales – Depression; PCL: post-traumatic checklist; AUDIT: Alcohol Use Disorders Identification Test; Ref=reference category; n=219 women prescribed antiretroviral therapy and with complete survey data for all included covariates

^a column %

^b bivariate associations

^c adjusted for displayed covariates

Table 3.4

Logistic Regression Models for Past Year Missed Visit Proportion >25%

	Missed >25% of visits ^a <i>n</i> (%) <i>n</i> =138	Missed ≤25% of visits ^a <i>n</i> (%) <i>n</i> =101	OR ^b (95% CI)	p value	aOR ^c (95% CI) <i>n</i> =234	p value
Past Year IPV						
No	61 (44)	56 (55)	Ref	-	Ref	-
Yes	77 (56)	45 (44)	1.571 (0.937-2.633)	0.087	1.300 (0.713-2.370)	0.392
Age						
18-35	9 (7)	9 (9)	Ref	-	Ref	-
36-45	37 (27)	15 (15)	3.643 (1.091-12.168)	0.036	1.429(0.390-5.232)	0.590
46-55	57 (41)	53 (53)	1.650(0.548-4.965)	0.373	0.894(0.274-2.919)	0.853
56 and older	35 (25)	24 (24)	2.250(0.702-7.216)	0.173	0.985(0.285-3.407)	0.980
Employment Status						
Unemployed	127 (92)	82 (81)	Ref	-	Ref	-
Employed	11 (8)	19 (19)	0.374 (0.169-0.826)	0.015	0.671(0.266-1.695)	0.399
Level of Education [n=236]						
< HS graduation	61 (44)	38 (38)	Ref	-	Ref	-
HS graduation or beyond	76 (55)	61 (62)	0.776(0.458-1.314)	0.346	0.975(0.527-1.802)	0.935
Alcohol Abuse [n=237]						
AUDIT <8	106 (78)	86 (85)	Ref	-	Ref	-
AUDIT ≥8	30 (22)	15 (15)	1.623 (0.820-3.209)	0.164	0.874(0.378-2.018)	0.752
Past Year Drug Use						
No	55 (40)	64 (63)	Ref	-	Ref	-
Yes	83 (60)	37 (37)	2.610 (1.538-4.431)	<0.001	2.826(1.525-5.236)	0.001

PTSD [n=237]							
PCL<45	99 (73)	82 (81)	Ref	-	Ref	-	
PCL≥45	37 (27)	19 (19)	1.613 (0.863-3.016)	0.134	0.859(0.376-1.961)	0.718	
Depression [n=237]							
CES-D<16	90 (66)	83 (82)	Ref		Ref		
CES-D≥16	46 (34)	18 (18)	2.357 (1.266-4.386)	0.007	2.330(1.012-5.362)	0.047	
Number of past year scheduled visits:							
1-6	2 (1)	10 (10)	Ref	-	Ref	-	
7-12	15 (11)	13 (13)	5.769(1.064-31.270)	0.042	4.637 (0.774-27.780)	0.093	
13-26	58 (42)	26 (26)	11.154(2.281-54.537)	0.003	8.733(1.667-45.755)	0.010	
27-52	44 (32)	31 (31)	7.097(1.453-34.670)	0.015	6.312(1.201-33.173)	0.030	
53-104	17 (12)	16 (16)	5.312(1.005-28.069)	0.049	4.201(0.731-24.157)	0.108	
105 or more	2 (1)	5 (5)	2.000(0.214-18.687)	0.543	0.981(0.093-10.380)	0.987	

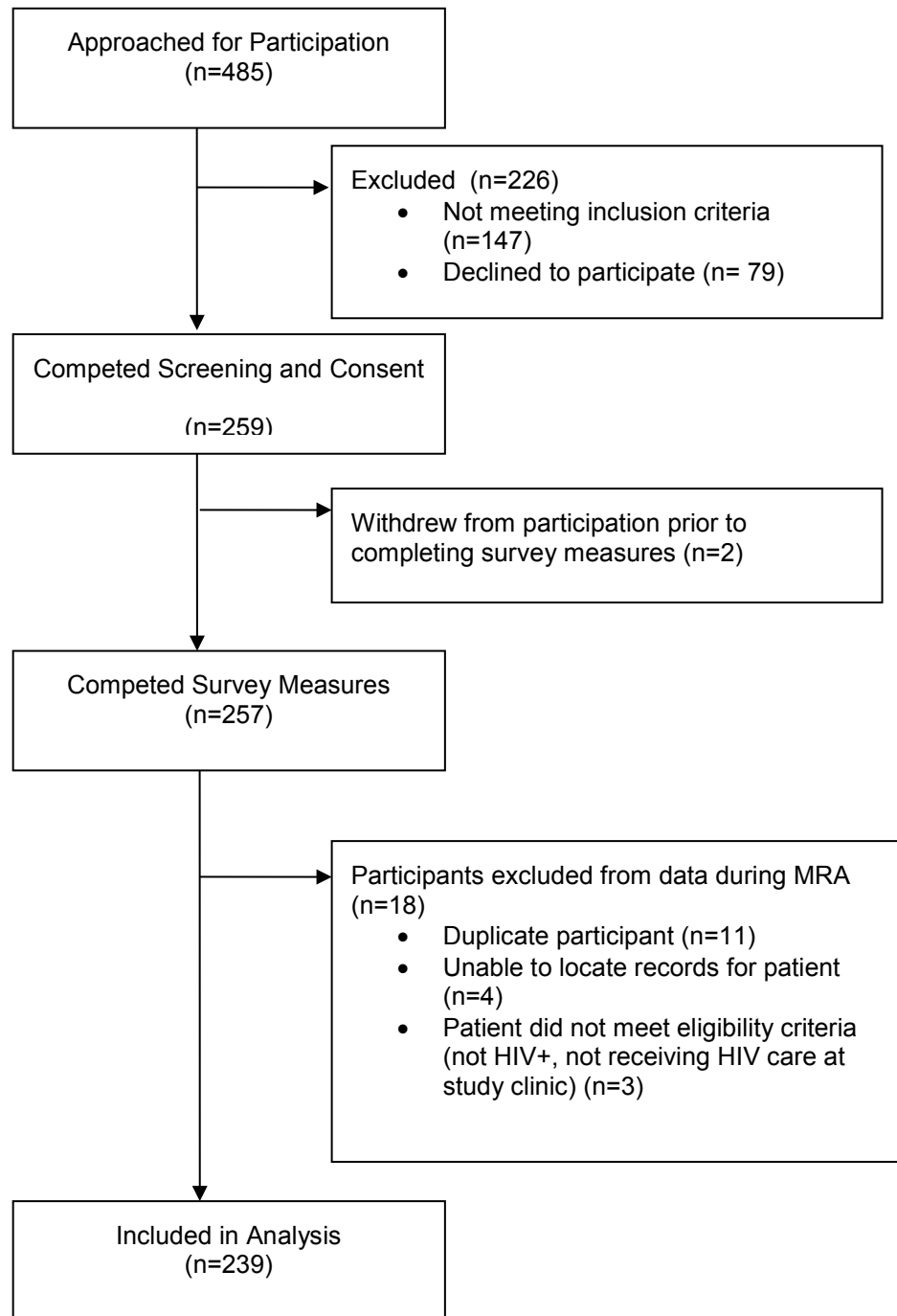
Notes: Items in bold were statistically significant. IPV: intimate partner violence; CES-D: Center for Epidemiologic Centers Scales – Depression; PCL: post-traumatic checklist; AUDIT: Alcohol Use Disorders Identification Test; Ref=reference category; n=234 women with complete survey data for all included covariates.

^a column %

^b bivariate associations

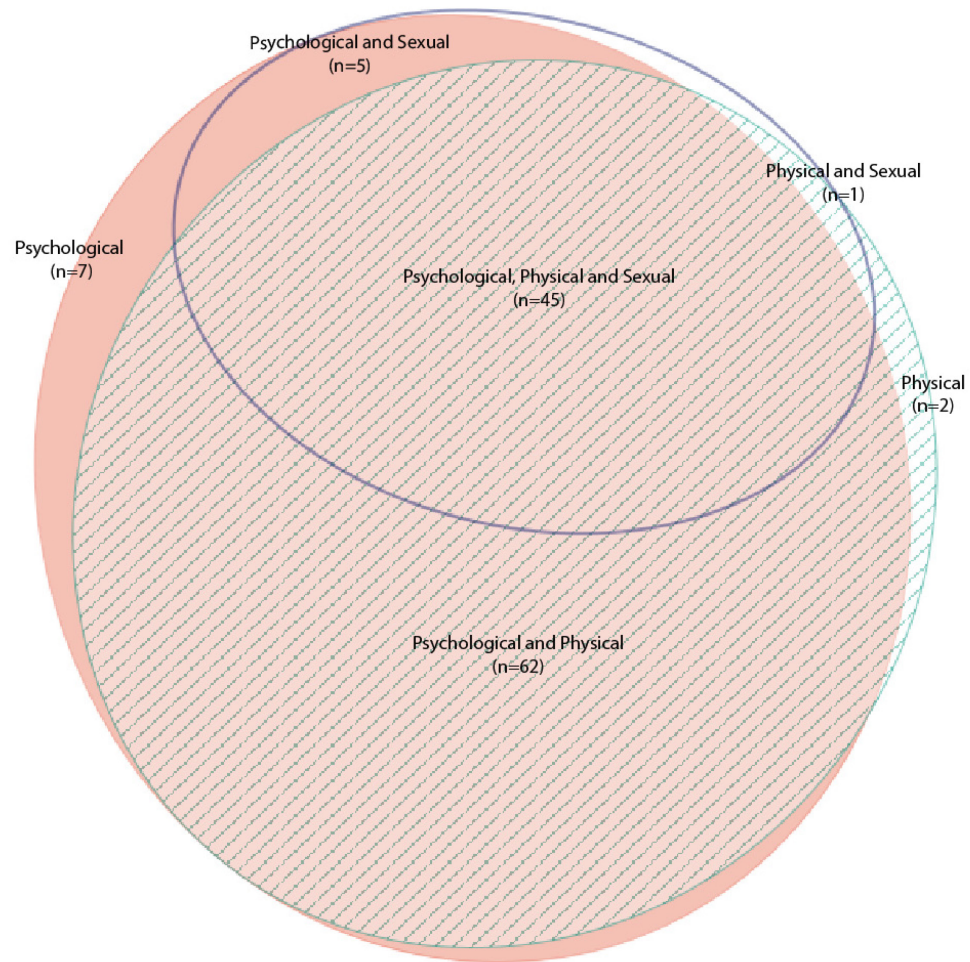
^c adjusted for displayed covariates

Figure 3.1. *Study inclusion diagram*



Note: MRA: medical records abstraction

Figure 3.2. *Intimate partner violence types reported by participants.*



Notes: Zero participants reported only sexual violence. Diagram created using eulerAPE (Micallef & Rodgers, 2014). Diagram proportions are approximate.

ADDENDUM TO CHAPTER THREE: MEDIATION ANALYSIS

One component of Aim 2 was to examine mediation effects of mental health symptoms on the HIV adherence and treatment markers in the sample. In addition to our hypothesis that women reporting past year IPV would have poorer HIV adherence and treatment outcomes, we also hypothesized that these effects would be mediated by symptoms consistent with depression and PTSD. This analysis and results were outside the scope of manuscript two and are included in this addendum.

Methods

Testing of mediation or indirect effects using Sobel's method was conducted to examine for potential impact of mental health variables (symptoms of depression or PTSD) had on the relationship between IPV and each HIV related outcome. Parameter coefficients from a series of models were used with Sobel's method to estimate the indirect effect (Hayes, 2009; MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). This method allowed for testing of indirect effects in the absence of statistically significant direct effects (Hayes, 2009; Hayes 2013). While mediation analysis has historically relied on a series of steps initially described by Baron & Kenny (1986), which required a statistically significant direct effect between the independent variable and the outcome, more recently this restriction has been criticized as overly limiting (Hayes, 2009; Hayes, 2013). In complex social and biologic processes, the questions of who, how, when or to what degree a variable effects an outcome may be important to answer even if the direct pathway is not statistically significant because of competing mediators which impact the outcome differently or limitations in sample size (Hayes, 2009; Hayes 2013).

Results

Separate regression models were used to assess for potential mediation effects of symptoms of depression and PTSD on the relationship between past year IPV and each of the three outcome variables (CD4 count <200, detectable viral load, proportion of missed visits >25%), for a total of six sets of regression models. In all but one model, these results were not statistically significant (Table 3a.1). As stated in Chapter 3, in bivariate testing, IPV was associated with CD4 count, viral load, PTSD and depression, but not missed visits (See Tables 3.2-3.4; 3a.1). For the missed schedule visit outcome, depression was found to significantly decrease the association between past year IPV and having missed >25% of scheduled clinic visits in the prior year (OR: 1.571, 95% CI: 0.937–2.633 versus OR: 1.359 95% CI: 0.790–2.339, Sobel: 2.04, $p=0.041$).

Discussion

In five of the six tested models, we did not find evidence of mental health symptoms impacting the relationship between past year IPV and HIV treatment adherence or outcomes. The significant indirect effect of symptoms of depression on the relationship between IPV and the missed clinic visit outcome in the absence of a direct relationship between IPV and missing >25% of clinic visits is consistent with depression having a significant direct impact on clinic attendance in a multiple variable model (See Table 3.4) and with having limited power to examine this outcome due to its limited variation. While we found inconsistency in the impact of mental health symptoms on the examined HIV treatment and adherence outcomes, our finding that symptoms of depression were responsible for a portion of the impact between IPV and missed visits does still provide support for the SAVA framework and direction for future clinical and

research work to address the adherence.

References

- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173-1182.
- Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs*, 76(4), 408-420.
- Hayes, A. F. (2013). *Introduction to mediation, moderation and conditional process analysis: A regression-based approach*. New York: Guilford Press.
- MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods*, 7(1), 83-104. doi:10.1037//1082-989x.7.1.83

Table 3a.1

Logistic Regression Model and Sobel Test Results from Mediation Analysis of PTSD and Depression on the Association between IPV and CD4 Count <200, Detectable Viral Load, Missed Visits >25% Outcomes

Proposed Mediation Pathway	OR (95%CI) ^a IPV-Outcome	OR (95%CI) ^a IPV-Mediator	OR (95%CI) ^b IPV+Mediator-Outcome	Sobel	p-value ^c
IPV-Depression-CD4	3.284 (1.251-8.619)	3.274 (1.701-6.303)	3.128 (1.165-8.395)	0.281	0.779
IPV-PTSD-CD4	3.284 (1.251-8.619)	3.145 (1.553-6.368)	3.092 (1.157-8.266)	0.438	0.661
IPV-Depression- VL	1.842 (1.006-3.371)	3.274 (1.701-6.303)	1.993 (1.061-3.743)	-0.588	0.556
IPV-PTSD-VL	1.842 (1.006-3.371)	3.145 (1.553-6.368)	1.993 (1.065-3.729)	-0.653	0.513
IPV-Depression-MV	1.571 (0.937-2.633)	4.014 (2.114-7.619)	1.359 (0.790-2.339)	2.039	0.041
IPV-PTSD-MV	1.571 (0.937-2.633)	3.374 (1.744-6.529)	1.513 (0.887-2.579)	1.055	0.291

Note: Items in bold were statistically significant. IPV: intimate partner violence; CD4: CD4 count <200; VL: viral load detectable; MV: missed visits proportion >25%

^a bivariate associations

^b adjusted for IPV and tested mediator only

^c p-value for Sobel test

ADDENDUM TO CHAPTER THREE: REPRODUCTIVE COERCION

In addition to the primary aim of determining prevalence of intimate partner violence (IPV), a secondary aim of this study was to investigate the prevalence of reproductive coercion within the HIV clinic setting. Reproductive coercion in the context of an intimate partner relationship is commonly defined as a male partner's behaviors which interfere with autonomous reproductive decision-making of a female partner. This can include restriction of access to or use of birth control methods or the use of coercion, threat or force in order to influence the timing or outcome of a pregnancy (Miller, Decker, McCauley, et al., 2010; Miller et al., 2007; Miller, Jordan, Levenson, & Silverman, 2010). In the United States, prevalence of reproductive coercion has been explored in samples from family planning clinics, obstetrics/gynecology clinics, IPV service provider settings (i.e., shelters, hospital-based IPV programs) and college campuses (Clark, Allen, Goyal, Raker, & Gottlieb, 2014; Kazmerski et al., 2015; McCauley et al., 2015; Miller et al., 2014; Sutherland, Fantasia, & Fontenot, 2015). Prevalence of reproductive coercion had not previously been reported in a sample of women living with HIV. This addendum to Chapter Three provides information on this study's findings related to reproductive coercion among a sample of urban women living with HIV.

Methods

Reproductive coercion was measured with a 9-item tool developed for use in family planning clinics, and has been utilized by researchers in both observational and intervention research (Miller et al., 2011; Miller, Decker, Raj, et al., 2010). No formal validation of the tool could be found in the existing literature. The tool includes a series

of nine yes or no questions used to assess for reproductive coercion. The tool includes two sub-domains of reproductive coercion. The first, birth control sabotage, includes direct efforts by the male partner to interfere with a woman's birth control method and the second, pregnancy coercion, includes coercive or violent behaviors intended to pressure a woman into becoming pregnant when she does not wish to be. A 'yes' answer to any of the nine questions was considered a positive screen for reproductive coercion; five of the nine items were specific to the birth control sabotage sub-domain and four were related to the pregnancy coercion sub-domain.

Women who reported being in a same sex relationship ($n=13$) were not asked about their reproductive coercion measures and two additional women did not complete the measure, leaving 224 women in this analysis. Notably, the median age of women in this study was 50 (range 24–66). Since we did not limit reproductive coercion questions to women of traditional childbearing age or include an item regarding current physiologic ability/inability to become pregnant (i.e., there were no items about being post-menopausal, or having had a hysterectomy or tubal ligation), we used age as a proxy measure and grouped women into two age categories for reproductive coercion analysis (age groups 18–44; 45 and older).

Results

Overall, prevalence of reproductive coercion was 15% (95% CI: 10–20%) with each of the sub-domains having a prevalence of approximately 10% (birth control sabotage, 10.2%, 95% CI: 6–14%; pregnancy coercion, 10.6%, 95% CI: 7–15%) (See Table 3a.1). There were no statistical differences noted in the prevalence estimates between women aged 18–44 and those aged 45 and older.

We also examined individual item responses for the nine items (See Table 3a.2); past year prevalence of individual items ranged from 2.2% ($n=5$) for having a partner who took away or interfered with access to birth control to 7.6% ($n=17$) for the item regarding removing a condom during sex in order to promote pregnancy. Differences between age groups were again non-significant; however, the small number of individuals reporting each behavior limits the interpretation of this insignificant finding.

An association was noted between reproductive coercion and IPV. Of the 34 women in the sample who reported past year reproductive coercion, 24 (71%) also reported past year IPV while only 10 women (29%) reported reproductive coercion without other past year abuse or violence ($X^2=6.36$, $p=0.012$). No associations were found between reproductive coercion and the HIV adherence and treatment outcomes (CD4 count, viral load, missed visits) on bivariate analysis in the entire sample or a subsample of women age 18–44 (See Table 3a.3), and reproductive coercion was not included in additional model testing for the primary study Aim 2.

Qualitative Findings Related to Reproductive Coercion

Two of the nine women who participated in the qualitative interviews indicated reproductive coercion on survey measures. However, neither identified reproductive coercion as being of concern to them during their qualitative interviews. One woman who reported experiencing multiple pregnancy coercion and birth control sabotage behaviors by her partner during the survey stated when asked about decisions regarding children,

“I was told that he didn’t want any more kids and I told him that I did, I only had one. He said he had, what twelve [children]? Maybe more? He was unsure. He

had a little wild spree for like 10 years and we eventually planned on it and she came. We had a baby.” (Participant 823)

Her daughter was nearly one at the time of the interview, and during the four months between her survey and interview she had ended her relationship with the child’s father. Concern regarding the power dynamic in this relationship was also noted by her providers in medical records, citing concerns regarding the 20-year age difference between the participant and her child’s father. Additional information regarding this participant’s affirmative answers to reproductive coercion or IPV survey measures was not easily elicited during the interview. Whether the participant’s feelings about the desire for this pregnancy had changed during the interim or whether she was reluctant to describe her experiences with reproductive coercion with the research team are unclear.

The second woman indicated that she had had a hysterectomy and was therefore not able to become pregnant at the time of the survey or interview. When reviewing her answers to individual reproductive coercion measure items, the only question she answered ‘yes’ to was the item “made you have sex without a condom so you would get pregnant.” In her broader discussion of her relationship with her partner, she did indicate that frequency of intercourse was at times an item of contention and that she would usually agree to have sex with her partner even if she was not interested in sex at a particular time because of her love for her partner. She also discussed the importance of using condoms because her partner was not HIV-infected. This raised concern regarding differences in perception of the reproductive coercion items. Whether this woman was reporting the partner’s behavior (sex without a condom), without including the requisite

underlying intent of the behavior (to get her pregnant) that the question sought is unknown, but appears possible.

Discussion

The reproductive coercion prevalence rate that we found is consistent with the higher end of prior estimates from urban family planning and obstetrics/gynecology settings (13-16%) (Clark, Allen, Goyal, Raker, & Gottlieb, 2014; Kazmerski et al., 2015), but higher than recent studies conducted in samples of mixed urban/rural family planning clinics and female college students (5–8%) (Miller et al., 2014; Sutherland et al., 2015). When considering that reproductive coercion is one type of coercive controlling behavior found in the context of relationship abuse, this is consistent with the overall high prevalence of IPV noted in our sample. The similarity in reported rates of past year reproductive coercion between women aged 18–44 and those age 45 and older does raise questions; particularly when taken in the context of the limited qualitative data in which a woman who reported only condomless sex as a specific reproductive coercion behavior on survey measures but denied any ability to become pregnant during the interview. The nature of having women report their partners' behavioral intentions does become difficult. Forcing or coercing sex without the use of a condom may be related to pregnancy intention, but may also be related to a number of other factors including partner preference, embarrassment regarding condom use, or establishing feelings of trust or control in a relationship (Browne & Minichiello, 1994). The intention may or may not be directly known by the woman reporting the behaviors, and similarly a woman's ability to become pregnant may or may not be known by her partner.

The use of a measure of reproductive coercion in a sample of women who are likely past reproductive age without assessing their ability to become pregnant poses significant limitations. Whether women in the sample were reporting based on behaviors irrespective of intent or were reporting intent irrespective of pregnancy potential is unknown. When examining the subsample of women of reproductive age, the prevalence of reproductive coercion was similar to that of the women over the age of 45—indicating perhaps that the partners' behavior patterns were not drastically different between these age groups in our sample, even if a pregnancy outcome was not possible. Additional research regarding the phenomena of reproductive coercion and its overlap with condom refusal behaviors is needed to assess both perceptions of reproductive coercion intent as well as specific coercive, controlling or sexual risk behaviors.

References

- Browne, J., & Minichiello, V. (1994). The condom: why more people don't put it on. *Sociology of Health & Illness*, 16(2), 229-251 223p.
- Clark, L. E., Allen, R. H., Goyal, V., Raker, C., & Gottlieb, A. S. (2014). Reproductive coercion and co-occurring intimate partner violence in obstetrics and gynecology patients. *American Journal of Obstetrics & Gynecology*, 210(1), 42.e41-48.
doi:10.1016/j.ajog.2013.09.019
- Kazmerski, T., McCauley, H. L., Jones, K., Borrero, S., Silverman, J. G., Decker, M. R., . . . Miller, E. (2015). Use of reproductive and sexual health services among female family planning clinic clients exposed to partner violence and reproductive coercion. *Maternal and Child Health Journal*, 19(7), 1490-1496.
doi:10.1007/s10995-014-1653-2
- McCauley, H. L., Silverman, J. G., Decker, M. R., Agenor, M., Borrero, S., Tancredi, D. J., . . . Miller, E. (2015). Sexual and reproductive health indicators and intimate partner violence victimization among female family planning clinic patients who have sex with women and men. *Journal of Women's Health*,
doi:10.1089/jwh.2014.5032
- Miller, E., Decker, M. R., McCauley, H. L., Tancredi, D. J., Levenson, R. R., Waldman, J., . . . Silverman, J. G. (2010). Pregnancy coercion, intimate partner violence and unintended pregnancy. *Contraception*, 81(4), 316-322.
doi:10.1016/j.contraception.2009.12.004
- Miller, E., Decker, M. R., McCauley, H. L., Tancredi, D. J., Levenson, R. R., Waldman, J., . . . Silverman, J. G. (2011). A family planning clinic partner violence

intervention to reduce risk associated with reproductive coercion. *Contraception*, 83(3), 274-280.

Miller, E., Decker, M. R., Raj, A., Reed, E., Marable, D., & Silverman, J. G. (2010).

Intimate partner violence and health care-seeking patterns among female users of urban adolescent clinics. *Maternal and Child Health Journal*, 14(6), 910-917.

doi:10.1007/s10995-009-0520-z

Miller, E., Decker, M. R., Reed, E., Raj, A., Hathaway, J. E., & Silverman, J. G. (2007).

Male partner pregnancy-promoting behaviors and adolescent partner violence: Findings from a qualitative study with adolescent females. *Ambulatory Pediatrics*,

7(5), 360-366. doi:10.1016/j.ambp.2007.05.007

Miller, E., Jordan, B., Levenson, R., & Silverman, J. G. (2010). Reproductive coercion:

Connecting the dots between partner violence and unintended pregnancy.

Contraception, 81(6), 457-459.

Miller, E., McCauley, H. L., Tancredi, D. J., Decker, M. R., Anderson, H., & Silverman,

J. G. (2014). Recent reproductive coercion and unintended pregnancy among female family planning clients. *Contraception*, 89(2), 122-128.

doi:10.1016/j.contraception.2013.10.011

Sutherland, M. A., Fantasia, H. C., & Fontenot, H. (2015). Reproductive coercion and

partner violence among college women. *Journal of Obstetric, Gynecologic &*

Neonatal Nursing, 44(2), 218-227. doi:10.1111/1552-6909.12550

Table 3a.1

Prevalence of Reproductive Coercion, Birth Control Sabotage and Pregnancy Coercion by Age Group, n (%)

	Overall (n=224)	Women age 18-44 (n=66)	Women age 45 and older (n=158)	X ²	p
Reproductive Coercion	34 (15.0)	11 (16.4)	23 (14.6)	0.13	0.722
Birth Control Sabotage	23 (10.2)	7 (10.4)	16 (10.1)	0.01	0.942
Pregnancy Coercion	24 (10.6)	8 (11.9)	16 (10.1)	0.16	0.687

Note: P-values for X² test comparing women age 18–44, and women age 45 and older.

Table 3a.2

Proportion of 'Yes' Answers to Individual Reproductive Coercion Screening Items, n (%)

		Overall (n=224)	Women age 18-44 (n=66)	Women age 45 and older (n=158)	<i>p</i>
<i>Reproductive Coercion Subdomain</i>	<i>Item</i>				
	<i>In the past year, has someone you were dating or going out with:</i>				
Pregnancy Coercion	Told you not to use any birth control (such as pills, shot, ring, etc.)?	12 (5.4)	3 (4.5)	9 (5.7)	1.000
	Said he would leave you if you did not get pregnant?	9 (4.0)	3 (4.5)	6 (3.8)	0.728
	Told you he would have a baby with someone else if you did not get pregnant?	14 (6.3)	6 (9.1)	8 (5.1)	0.362
	Hurt you physically because you did not agree to get pregnant?	8 (3.6)	2 (3.0)	6 (3.8)	1.000
Birth Control Sabotage	Taken off the condom while you were having sex so that you would get pregnant?	17 (7.6)	6 (9.0)	11 (7.0)	0.590
	Put holes in the condom so you would get pregnant?	7 (3.1)	4 (6.1)	3 (1.9)	0.199
	Broken a condom on purpose while you were having sex so you would get pregnant?	10 (4.4)	3 (4.5)	7 (4.4)	1.000
	Taken your birth control (such as pills) away from you or kept you from going to the clinic to get birth control so that you would get pregnant?	5 (2.2)	2 (3.0)	3 (1.9)	0.636
	Made you have sex without a condom so you would get pregnant?	14 (6.2)	5 (7.5)	9 (5.7)	0.763

Note: P-values for Fisher's Exact test comparing women age 18–44, and women age 45 and older.

Table 3a.3

Proportion of Participants Reporting Reproductive Coercion by HIV Adherence and Treatment Outcomes

	CD4 Count <200	CD4 count ≥200	<i>p</i>
Reproductive coercion (all ages, on ART, n=210)			
Yes	1 (4)	27 (15)	0.213 ^a
No	23 (96)	159 (86)	
Reproductive coercion (women age 18-44, on ART, n=60)			
Yes	0 (0)	7 (14)	0.580 ^a
No	9 (100)	44 (86)	
	Viral load detectable	Viral load undetectable	<i>p</i>
Reproductive coercion (all ages, on ART, n=210)			
Yes	8 (14)	20 (13)	0.060 ^b
No	48 (86)	134 (87)	
Reproductive coercion (women age 18-44, on ART, n=60)			
Yes	2 (9)	5 (14)	0.697 ^a
No	21 (91)	32 (87)	
	Missed visits >25%	Missed visits ≤25%	<i>p</i>
Reproductive coercion (all women w/male partners, n=224)			
Yes	18 (14)	16 (17)	0.498 ^b
No	113 (86)	78 (83)	
Reproductive coercion (women age 18-44, n=66)			
Yes	5(12)	6 (25)	0.182 ^a
No	38 (88)	18 (75)	

^aFisher's Exact test

^b X² test

CHAPTER FOUR: MANUSCRIPT THREE

Urban Women's Perspectives of the Impact of Partner Violence, Substance Use and Mental Health on Adherence to HIV Care

Jocelyn C. Anderson, PhD(c), MSN, RN, FNE-A

Jacquelyn C. Campbell, PhD, RN, FAAN

Jennifer Wenzel, PhD, RN, FAAN

Jessica E. Draughon Moret, PhD, RN

Michele Decker, ScD, MPH

Nancy E. Glass, PhD, MPH, RN, FAAN

Target Journal: Journal of Urban Health

Abstract

The impact of intimate partner violence (IPV) on women's ability to navigate and adhere to HIV care has become a prominent focus of national health care policy. In order to more wholly understand how women view this impact in their lives, we conducted a qualitative follow up to a larger study examining relationships between the SAVA (substance abuse, violence, and HIV/AIDS) syndemic factors of IPV and mental health on urban women's HIV care adherence and treatment outcomes. Utilizing syndemic theory as a framework for data collection and analysis, nine women who reported partner violence on survey measures participated in semi-structured, in-depth interviews regarding their experiences with IPV, substance use, and mental health. Particular attention was paid to glean information about the way in which women described these syndemic factors as impacting or not impacting their HIV care. Women's descriptions of managing their HIV care focused heavily on the roles and labels they chose to identify with in their lives. Women reported being mothers or caregivers as an import role in their lives, which often acted to facilitate or motivate them to engage in HIV care. Participants identified the SAVA syndemic factors of substance abuse and mental health issues as barriers to seeking or adhering to care. Participants did not however focus on the label of "victim/survivor" of IPV. They minimized the amount and severity of violence in general when compared to what they reported on quantitative survey measures, and did not identify IPV as a factor that limited their ability to adhere to HIV care. Our findings highlight the importance of establishing not only theoretical understanding and statistical significance of syndemic factors' impact on HIV care and treatment among urban women, but in understanding how women's perceptions of these factors might impact their help-seeking behaviors or utilization of services.

Background

Urban women face a myriad of interconnected health and social inequities including poverty, violence, discrimination, high rates of incarceration, mental health disorders and substance abuse (Galea & Vlahov, 2002; Williams, 2008). These co-occurring social determinants of health are often referred to as a syndemic, “a set of enmeshed and mutually enhancing health problems that, working together in a context of noxious social and physical conditions, that can significantly affect the overall disease burden and health status of a population” (Singer, 2009). Syndemic theory moves beyond traditional biomedical descriptions of disease or co-morbidity to explore the possibility that certain social and medical conditions act synergistically to produce outcomes in excess of the cumulative impact of any one condition. Syndemic theory has been used to examine treatment adherence, behavioral risk factors, and mental health outcomes in patients living with HIV (Biello et al., 2016; Friedman et al., 2015; Gonzalez-Guarda, McCabe, Leblanc, De Santis, & Provencio-Vasquez, 2016; Herrick et al., 2013; Illangasekare, 2011; Kuhns et al., 2016).

The SAVA syndemic specifically highlights the interplay between substance abuse, violence and HIV/AIDS (Singer, 1994, 1996, 2009). SAVA syndemic framework has been used in both nursing and public health research to examine the theoretically bidirectional and even cyclical risks of HIV and intimate partner violence (IPV) (Gonzalez-Guarda, Peragallo, Urrutia, Vasquez, & Mitrani, 2008; Illangasekare, Burke, Chander, & Gielen, 2013). Despite growing evidence that concepts noted in the syndemic framework including IPV, substance abuse, and mental health symptoms contribute to poorer health care outcomes for persons living with HIV, limited research has been

conducted to translate this framework into specific intervention practices (Gilbert et al., 2015; Tsai & Venkataramani, 2016).

Specifically, IPV and HIV have been noted as co-occurring phenomena in the literature for nearly two decades (Campbell et al., 2008; Maman, Campbell, Sweat, & Gielen, 2000). More recently, a small number of studies began to present data on the impact of IPV on antiretroviral therapy (ART) initiation and adherence (Blackstock, Blank, Fletcher, Verdecias, & Cunningham, 2015; Blank et al., 2015; Hatcher et al., 2015; Schafer et al., 2012; Siemieniuk et al., 2013). This intersection has also achieved recognition among multiple key leaders and stakeholders including the White House, whose 2013 report, “Addressing the Intersection of HIV/AIDS, Violence Against Women and Girls and Gender-Related Health Disparities”, highlighted the disparities found in HIV risk behaviors and treatment among women. These disparities include higher rates of IPV, which are often directly linked to an HIV diagnosis, increased HIV risk behaviors (substance use, unprotected sex), and decreased use of ART among women who had previously experienced violence (Interagency Federal Working Group, 2013). This interagency report suggested addressing violence and trauma with women in HIV care settings as a method of improving outcomes; noting however that there have been very few evidence-based trauma-informed interventions targeting this particular population.

A syndemic framework suggests that full attention must be paid to each aspect of the syndemic in order to understand and intervene. However, the perspectives of patients regarding the relationships presented in the SAVA syndemic are largely overlooked in the current literature (Illangasekare, 2011; Illangasekare et al., 2013). In order to successfully design, implement, and test interventions stemming from a SAVA framework, additional information about patient preferences and priorities is necessary.

Specifically, given the multitude of potential barriers to adherence and programs already in place to address individual aspects such as IPV, substance abuse and mental health, a more complete understanding of how these factors act in tandem or isolation to effect adherence and health care outcomes is required. Thus, this study aims to better understand women's perceptions of the impact that SAVA syndemic factors (IPV, mental health and substance use) have on their HIV care. Situated within a larger study of the association between SAVA syndemic factors (IPV, mental health symptoms and substance abuse) on HIV treatment and adherence markers in an urban clinic sample of primarily low income, African-American women living in Baltimore, Maryland, we aimed to explore the perceptions of women living with HIV regarding the role of IPV, mental health symptoms, and substance abuse in their treatment adherence and HIV care.

Methods

Study Design

This explanatory sequential mixed methods study consisted of two phases. Phase 1 included collection of survey data and review of medical records from eligible and consenting women ($n=239$) attending an urban HIV specialty clinic and took place between March 2014 and November 2015. Phase 2 consisted of individual, in-depth, semi-structured interviews with purposively selected participants based on preliminary analysis of Phase 1 data and was conducted between June 2015 and February 2016 ($n=9$). The presented findings are from the analysis of Phase 2 qualitative data, with individual participant responses to Phase 1 survey items used to provide context to women's interpretation of the impact of SAVA factors on their health.

Recruitment, Eligibility, Consent and Data Collection

Recruitment and data collection was conducted in an urban HIV specialty clinic.

In addition to HIV care services, on-site specialty care at the clinic include among others, psychiatry and substance abuse treatment services. Participants self-referred or were recruited to the study via clinic provider referral. Participants were eligible if they were women, 18 years or older, English speaking, patients in the study clinic for at least one year, and reported being in a relationship within the past year. Eligibility screening, consent, and survey data were collected via tablet computer with the assistance of trained research staff. Participants had an opportunity to indicate interest and provide contact information to participate in Phase 2 at the completion of Phase 1 interviews. Purposive sampling among participants who indicated interest in Phase 2 was used to achieve maximum variation among the sample regarding syndemic variables including substance abuse, mental health symptoms, and HIV disease status (Patton, 2002; Sandelowski, 1995). These were determined by reviewing Phase 1 survey instrument scores related to key syndemic concepts. This included review of measures of IPV (the Abuse Assessment Screen and the Severity of Violence Against Women Scale, Danger Assessment), mental health symptoms (Center for Epidemiologic Studies—Depression, Post-traumatic Checklist—Civilian) and substance use (Drug Abuse Screening Test, Alcohol Use Disorders Identification Tool) (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001; Blanchard, Jones-Alexander, Buckley, & Forneris, 1996; Bohn, Babor, & Kranzler, 1995; Campbell, Webster, & Glass, 2009; Canady, Stommel, & Holzman, 2009; Marshall, 1992; McFarlane, Parker, Soeken, & Bullock, 1992; Radloff, 1977; Ruggiero, Del Ben, Scotti, & Rabalais, 2003; Skinner, 1982). Medical records were reviewed including laboratory data to obtain the most recent CD4 count and viral load on or before the date of the survey. By design, only women reporting past year IPV were included in Phase 2, while variation in reported mental health symptoms and substance use behaviors was

sought. Variation in HIV disease control—women who had achieved viral suppression and had CD4 counts >200 (GC: good control) versus women with detectable viral loads and CD4 counts <200 (PC: poor control)—was also used as a sampling criteria. Eleven women who agreed to be contacted and fulfilled the sampling frame criteria were contacted for Phase 2 interviews; nine women responded and consented to participate, and two did not respond to the interview request. Because of the ongoing nature of the study's recruitment effort and in order to minimize the burden of having to come to the clinic for an additional visit, efforts were made to schedule interviews around participants' scheduled clinic visits. Interviews were scheduled at a time and location convenient for the participant with the opportunity for participants who did not have a scheduled clinic visit in the near future to request that the interview be completed by telephone. After reviewing informed consent forms, interviews were conducted by the lead author (JCA) and were digitally recorded. Participants received a \$10 gift card for completing Phase 1, and an additional \$25 gift card for completion of the Phase 2 in-depth interview. The Johns Hopkins Medical Institutions' (JHMI) Institutional Review Board approved this study.

The authors who have extensive clinical and research experience in IPV, mental health, HIV/AIDS, and substance abuse developed the semi-structured interview guide. The guide acted as the basis for interviews and included questions regarding each of the syndemic concepts being investigated—IPV, mental health, and substance use; however, the interviews were reflexive in nature which allowed the interviewer flexibility during exchanges with the participant in exploring the topics of interest (Banner, 2010; Patton, 2002; Sandelowski, 1993). Revisions to the interview guide were made after the initial two interviews to increase the openness of questions and solicit richer responses (Banner,

2010).

Data Analysis

The digital recordings were professionally transcribed. The SAVA syndemic framework described above acted as an initial theoretical guide for the qualitative descriptive analysis methods (Thorne, Kirkham, & MacDonald-Emes, 1997). Analysis was ongoing during the data collection process, and consisted of a series of steps as follows: 1) reading each transcript to verify accuracy of the transcripts to recorded audio; 2) continued review of each transcript and associated field notes were completed to gain an understanding of the overall responses to the interview (Corbin & Strauss, 2008; Sandelowski, 2000); 3) detailed reading of each transcript and eclectic combination using attribute, in vivo and open coding methods (Onwuegbuzie & Teddlie, 2003); 4) second level coding involved pattern and structural methods; 5) grouping of codes into categories and themes (Saldana, 2013). Analytic memos were used throughout the analysis process regarding new codes, categories and themes to track researcher's decision-making process (Corbin & Strauss, 2008). Completed interviews with participants were transcribed and analyzed throughout the data collection process. Coding using the qualitative analysis software HyperResearch (ResearchWare, 2013) and primary analysis of themes and categories was completed by the lead author (JCA), with ongoing discussion and review of codes, categories, and themes with co-authors occurring throughout the analysis process.

Data Integration

Quantitative and qualitative data were initially analyzed separately. Data were integrated during later phases of analysis using matrices and tables to assist in comparing quantitative findings to qualitative themes. During the data integration process,

participants were grouped according to reported SAVA factors to examine similarities and differences between groups. Additionally, case summaries assisted in comparisons between women's reported experience based on categories identified in quantitative responses such as HIV treatment markers, mental health symptoms, and substance abuse. In order to highlight the quantitative context of participant quotes, each quotation is followed by a parenthetical which includes key SAVA syndemic findings from the participant's self reported survey data. This data includes: participant ID; participant age; past year report on AAS or report of moderate, severe or sexual violence on the SVAWS (as IPV+/-) (Marshall, 1992; McFarlane, Parker, Soeken, & Bullock, 1992); past year illicit substance use or past six-month AUDIT score >7 (as substance use, SU+/-) (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001); past month PCL-C score >44 and/or past two week CES-D score >15 (as mental health, MH+/-) (Canady, Stommel, & Holzman, 2009; Ruggiero, Del Ben, Scotti, & Rabalais, 2003); and HIV disease control group (as GC: good control, PC: poor control).

Results

Interview participants ranged in age from 25 to 51, were primarily African-American ($n=7$, 78%), had completed high school ($n=6$, 67%), and were unemployed ($n=6$, 67%). See Table 4.1 for demographic data on interview participants. In our thematic analysis of the nine interviews, two main themes emerged related to women's HIV diagnosis and care. The first theme was "(Re)establishing identity and managing labels". This theme contained three subthemes: 1) normalizing versus stigma, 2) minimizing violence, and 3) the importance of being a mom or caregiver. This theme was characterized by how women viewed themselves and portrayed themselves to the world as living with HIV. The second theme, "I know what I need to do", had two supporting

subthemes: 1) accepting responsibility, and 2) barriers to overcome. The second theme related to women's understanding of the imperative of treatment to manage their HIV disease, and personally overcoming challenges to achieve adherence.

(Re)establishing Identity and Managing Labels

Women in this study shared how they established (or re-established) their identity following their HIV diagnosis. This was an ongoing process for women who reported continuing struggles with disclosure of their HIV status among their social and family networks. Most commonly, this identity establishment occurred through self-selection of what roles or labels the patient identified with during the interview. As participants were chosen for the qualitative interviews after both survey and medical records data had been collected, the research team and interviewer had a great deal of information about the women's SAVA defined risk factors prior to the interviews (i.e., HIV diagnosis, adherence and treatment markers, substance abuse behaviors, survey reports of IPV, depression, PTSD). It became evident from the data that there were certain roles or labels that patients were more likely to accept or reject. Participants' survey responses, medical records, and interview described SAVA factors (see Table 4.2). The importance of which labels a participant chose to accept personally or publically became evident in their narratives and did appear to link to their adherence to treatment. Women who indicated less acceptance of their HIV diagnosis reported a more difficult time adhering to their HIV care regimen. One woman who had been diagnosed 15 years earlier and was not adherent to antiretroviral therapy (ART) summed up her overall HIV care experience with the following statement,

"I'm just dealing with it...because I don't have a choice. I have to. I have to deal with it. I think it gets better, in time. Maybe it does, maybe it don't, but it's there."

It's there. That's the way I look at it." (596, 57y/o, IPV+, SU-, MH-, PC)

Normalizing versus stigma. Participants chose to accept or avoid certain labels due to the perceived stigma or perceived support associated with each label. The HIV diagnosis itself was a challenging label for most participants to deal with. One participant noted the challenges in the process of establishing an identity separate from her diagnosis. She repeatedly referred to herself, as "I'm HIV", and discussed her fears of disclosing her diagnosis with others. As a result, she disclosed her HIV diagnosis first to her (then) teenaged sons. Her fear of disclosure and lack of social support are likely linked to her providers' documentation of difficulties with consistent ART adherence and resistance to engage in mental health care services.

Participants who had a history of substance abuse ($n=7$ lifetime, $n=4$ past year) readily acknowledged their status as "in recovery" and connected their HIV diagnosis to their drug use. Participants "in recovery" were also able to identify how their substance use, mental health issues, and HIV treatment adherence were linked—in effect, normalizing this factor as important to their health. One participant described her concurrent recovery efforts as follows.

"I'm currently on my fourth step, which has been a little bit rough because it brings up a lot of past issues. Like I said, I jumped head into Narcotics Anonymous completely. To the literature, to doing step work. At times, that was a little bit stressful for me too, because there was some things I just didn't wanna face [related to prior abuse history]I did start [psychiatric] medication, so it made me a lot more stable. I was able to think straight." (676, 35y/o, IPV+, SU+, MH+, PC)

Another participant discussed the challenges in getting into drug treatment programs and

how her HIV diagnosis allowed her to seek the substance abuse treatment she needed,

“Well, I’m in the program because I got sick. Other than that, I wouldn’t even be gettin’ the assistance that I’m gettin’” (653, 46y/o, IPV+, SU-, MH+, GC)

Participants with no substance abuse history were quick to clarify that they did not become infected with HIV through “the life”, referring to drug use or prostitution, but from a trusted relationship partner or in the case of one participant, vertical transmission from her mother. Regardless of their substance abuse history, participants appeared aware that an HIV diagnosis is commonly associated with substance abuse and the accompanying social stigma. All participants talked about limiting the disclosure of their HIV status to some degree. Even women who were very active in substance abuse programs, actively sharing their recovery journeys via social media audiences placed limits on the sharing of their HIV status. One participant who discussed her regular use of social media within the context of Narcotic Anonymous said about disclosing her HIV status,

“For the most part, my status is need-to-know basis only. It’s kind of hard for me to tell people...I try to keep it a little bit more quiet.” (676, 35y/o, IPV+, SU+, MH+, PC)

The importance of being a mother or caregiver. Overall, women with children strongly identified with their role as a caregiver. Being a good mother was a priority, as six participants identified children as a factor that positively impacted their HIV care. During the interview, participants shared how they chose to enter care, stay in care, or get clean from drugs in order to be a better mother. One participant discussed her relationship and love for her son in the following statement.

“Especially for like me and my son...we’re like one because I know him so well.

He knows me. People envy that. There's women that envy that. They envy that. They see me giving my child love."

She continued by discussing her risk behaviors, and shared how she was able to protect her son from these behaviors and how that was different from other mothers "in the life."

"I done did everything there is out there to do. My son ain't never seen me in the bed with no man, sucking no man's dick or none of that, never. You know what I mean? I'm not going to disclose names but a girlfriend of mine, her son is the same age as mine. He walked in and he saw that." (536, 43y/o, IPV+, SU+, MH-, PC)

Children and/or pregnancy were identified as both motivation for and a means to gain access to care, or to help women prioritize remaining in HIV care and adherence to treatment to achieve viral control. However, they also noted the challenges with continued sobriety and treatment adherence following pregnancy. One participant shared,

"I didn't find out I was positive until I was seven months pregnant with [participant's oldest son]. Thank God he came out negative. All my kids came out negative. I took my medication with them, and they, they're healthy. After that, I continued with my drug use. I got on the program. I was on the methadone program. I would stay clean on them, and then I'd have my relapse. Every couple of years, I had a little relapse here and there, but I still wasn't compliant with my medicine, with my HIV meds." (475, 28y/o, IPV+, SU+, MH+, PC)

The focus on children as a facilitator of care engagement did align with whether women had an active relationship with their children. In contrast, one woman who had achieved a long period of sobriety and adherence to her HIV care, but had minimal contact with

her adult children described the relationship very differently. She did not seem to focus on her role as a mother as one that was important to her identity. Her more tenuous relationship with her children also highlights the importance of support from the health care system, especially when other sources of social support and identity are limited.

“Well, my son is more to loving me, and talking to me, and being a part of my life than my daughter. My daughter refuses to talk to me. She's bitter because I went to jail. She says I was a total embarrassment. I should've never gotten on drugs. Well, oh well. I don't know what to tell you. The shit happened and I had to live on. ...Many families mended back together. Some don't. I'm in that category. I don't have my blood natural family. I don't have support from them. I have support from my network is the best friend I told you about and this clinic.” (745, 50y/o, IPV+, SU+, MH+, GC)

Similarly, a participant who did not have children voiced a desire for additional support dealing with the stresses of everyday life,

“They need to have more support for the doctors need to get a little bit more involved in the every day-to-day life with their patients. I would like for my doctor to ask me questions about what's going on, I mean, at my home front, give me suggestions and ideas that I can take home and use for, you know, if it's a hard day, stuff like that.” (743, 25y/o, IPV+, SU-, MH+, GC)

Minimizing violence. While participants tended to highlight their maternal and caregiving roles, there were other labels they were more hesitant to accept. All nine women interviewed were selected for participation because they had reported past year IPV on survey measures. However, the majority of women did not define themselves as a survivor or victim of IPV, and did not connect partner violence with their HIV care or

adherence (see Table 4.2). For example, one participant who scored 25 (Extreme Danger category) on the Danger Assessment scale—a measure of risk for repeat severe or lethal violence by a partner during the survey—stated in the interview:

“No, he never hit me. He never hit me. He was verbally abusive. I didn't know at the time he was high. He was on drugs. Drinking. I just can't tolerate any of that anymore. I used to when I participated. Because I live such a different life now, I just have no patience for any of it.” (745, 50y/o, IPV+, SU+, MH+, GC)

Another participant who also reported high levels of physical and sexual violence on survey measures, including a Danger Assessment score of 35, stated,

“It would be shoving, throwing the water on each other...It was just different stuff. It was definitely physical. It wasn't actual marks being left, but it wasn't those... [participant stopped talking].” (823, 25y/o, IPV+, SU-, MH+, GC)

This participant reported that her health care provider had asked her about IPV in her relationship but she noted that she did not disclose IPV to the provider despite the physical and sexual violence she reported on the survey measures.

Participants denied having partners who directly interfered with their ability to adhere to their current HIV care. Participants focused discussions primarily on their control over their health and their situations, minimizing the impact that their partners were able to have on adherence. However, participants did note that partners could be an influencing factor on their ability to remain abstinent from drugs or alcohol.

“Had I not been in therapy with [psychiatrist], I would have probably more or less relapsed with this guy. I would've probably got back on drugs, because I loved him and liked him.” (745, 50y/o, IPV+, SU+, MH+, GC)

“My husband would always give me alcohol. My husband never don't use, and he only drinks when I drink, right, because he's got nothing. He works all the time. I would always ask him for alcohol. He was a very big enabler for me. He really thought he was helping me, but he really wasn't.” (475, 28y/o, IPV+, SU+, MH+, PC)

Participants also described strategies they used to minimize partners' interference in their lives and health care including separate living arrangements, limiting a partner's access to health care information, and use of the justice system to promote safety and behavior changes for themselves and their partner.

“I know his probation officer. A lot of women, oh, I caught hell from my girlfriends. ‘You shouldn't. You shouldn't.’ Love is a strange emotion. I don't think there are any rules....I don't throw it up in his face, but he always knows there's room for me. I doubt everything that he says and everything that he does. Not doubt. Maybe I'm saying the wrong word. I watch him very carefully, because the moment a flag goes up, he will go permanently. I chose to give him another chance, because I loved him.” (745, 50y/o, IPV+, SU+, MH+, GC)

“He said if I wanted him to leave, then I needed to get the police involved. That's exactly what I did. Went and changed all the locks on my house. Went downtown, got a restraining order.” (676, 35y/o, IPV+, SU+, MH+, PC)

“I know what I'm supposed to do”

The second main theme identified during analysis was elicited frequently when participants were asked specifically about the things that made it easier or more difficult to adhere to prescribed HIV care, participants often echoed statements about the necessity

of coming to the clinic or taking medications such as “I know what I’m suppose to do,” “I just made up my mind,” “I don’t have a choice,” and “I decided to listen [to her provider regarding ART].” This sense of asserting control over the decision to adhere to care complimented the control that women wanted over their identity and the labels ascribed to them. The potential negative outcomes that participants associated with being non-adherent included death, hospitalization, disability, and loss of child custody were all mentioned by individual participants.

Accepting responsibility for care. The participants were knowledgeable about the risks of not adhering to prescribed HIV medications and clinic appointments and its impact on the disease process. The understanding that adherence to medications was life-saving and within each individual’s control was clearly articulated throughout the majority of interviews. The notable exception was one participant who reported being actively engaged in drug use behaviors both during this study’s survey and interview. Despite reporting ongoing substance use, she did not associate her drug use with a lack of adherence to treatment and care. She stated multiple times throughout the interview that things were “good” or “fine”, and that there were “no problems” when asked to discuss how she thought her drug use impacted her health care. This was in direct contrast to her medical records, which indicated substantial challenges to adherence, which her health care providers attributed to drug and alcohol use as well as a detectable viral load and low CD4 count.

Barriers to overcome. Despite having an understanding of the medical necessity of HIV treatment and care, participants did report a variety of barriers to adherence. Participants identified commonly noted barriers such as lack of insurance and pharmacy access, limited transportation options to attend clinic appointments, and side effects of the

medication. In contrast to participant's limiting the role of the abusive partner on adherence, they identified other aspects of the SAVA syndemic framework as having a direct impact on their ability to adhere to treatment and care (see Table 4.2). Participants described how both substance use and symptoms associated with depression and post-traumatic stress altered their behaviors and thus limited attention to their health. The following two quotes provide examples of SAVA concepts as barriers to HIV care.

"Nine months after being off of street drugs, I decided that I wanted to get high for five days, which violated me for probation. I had a nervous breakdown. Went to the psych ward. I'm not medicated at this point. I'm not really seeing doctors. I'm not doing nothing I'm really supposed to be doing. I'm barely scraping by." (676, 35y/o, IPV+, SU+, MH+, PC)

"Well, I'm a type of person when I get...because I have bipolar and schizophrenia the littlest things can set me off, the littlest thing. Like this month, it's my rent...I mean it's my bills. I have more bills than I have money. It gets me to a, it gets me to a depression state where I just be like, 'You know, I'm not doing nothing, I don't even care, forget this, I'm not taking no more of this medicine, I'm not doing this, I'm not paying nothing.' I just go into this real depressed state and I just I shut down. Just like when my father died, I shut down. Everything just was on hold. Like, I didn't take my medicine or nothing." (743, 25y/o, IPV+, SU-, MH+, GC)

Substance use in particular was noted as something that would interfere with care even for women who had extended periods of sobriety. Of note, while several women reported past year drug use on Phase 1 survey measures, all but one reported a period of at least 30 days of sobriety at the Phase 2 interview. When examining substance abuse reporting in

the context of quantitative data regarding HIV disease control, we noted that participants who reported past year drug use on survey measures, tended to also fall into the group of participants with poorer HIV adherence and treatment markers (See Table 4.2).

Discussion

While this study's purpose and design were based on the SAVA syndemic framework and included specific items related to the impact of IPV, depression, PTSD and substance abuse on women's HIV care, we did not find that women acknowledged or reported each of the SAVA syndemic factors as equally important to their lives or their health care regimen. Women in this study were more likely to accept the label of "addict" or "in recovery" than they were the labels of "HIV-positive" or "victim/survivor of IPV or domestic violence". They were also far more willing to discuss the even more positive label of mother or caregiver, and how fulfilling this role was important. Control over disclosures and these labels appeared important to all women, despite varying levels of comfort with different labels.

Importantly, despite the severity of the IPV women reported in the survey component of this study, women seemed to minimize these experiences of violence and the relevance of IPV to adherence to treatment and care during their interviews. This findings is not unique to our study, women in prior studies have presented various reasons for choosing not to identify as "abused". Prior work has highlighted the belief of some women that survivors of violence are strong and independent, and therefore feeling it was not necessary to disclose IPV or seek support or services, particularly after violence has ended (Amar, Bess, & Stockbridge, 2010; Campbell, Rose, Kub, & Nedd, 1998; Gillum, 2009; Postmus, 2015; Tillman, Bryant-Davis, Smith, & Marks, 2010). Participants' underlying beliefs about violence are particularly relevant given the setting

in which the current study was conducted. The clinic serves a primarily low income, African-American community in which social factors such as unemployment, low education levels and high rates of incarceration also impact patient's lives and how they interpret violence. These intersecting sources of discrimination and stigma may serve to provide differential interpretation of the violent partner behaviors measured in this study's survey. Prior research has explored cultural interpretations of IPV and found that not all women define specific acts of physical violence as IPV (Sokoloff & Dupont, 2005). This dissonance between identified risk factors for poorer HIV care outcomes and women's stated experienced and priorities presents a challenge to clinicians and researchers hoping to develop intervention programs, particularly for addressing the intersection of IPV and HIV.

While sharing substance abuse-related concerns with health care providers was a relatively well accepted practice, sharing violence-related issues or concerns even with health providers was not a priority. They largely did not describe violence as a problem in their lives for which they required outside support or attention. The lack of disclosure to health care providers reflects ongoing safety and health challenges that may limit participant's ability to utilize professional. Women's relative ease of identifying and accepting the label of "in recovery" may be due to their reported participation in substance abuse treatment programs that place emphasis on acknowledging their addiction as part of the recovery process. This acknowledgement is seen as literally the first step in the recovery process and is accompanied by social support systems (DeLucia, Bergman, Formoso & Weinberg, 2015). However, there is no such model for IPV survivors. In fact, women in abusive relationships may have previously seen negative consequences from disclosure to family, friends or health care providers whose focus

often fixates on getting a woman to leave an abusive relationship (Illangasekare, 2011; Postmus, 2015; Sylaska & Edwards, 2014). A previous qualitative study conducted in Baltimore to examine social support with women who reported multiple SAVA syndemic factors noted that help-seeking and social support for IPV were more limited than mental health or substance abuse issues (Illangasekare, 2011). That study's results also stated that fear of judgment about being in or staying in an abusive relationship was cited by women as a reason for not utilizing their usual sources of social support, such as friends and family members.

Women in this sample also presented strategies for asserting control through sharing their diagnosis with their family and beyond. They shared that particular care and attention was needed in maintaining limits regarding who was aware of their HIV diagnosis and the label of being "HIV-positive". This finding is consistent with prior research in both the intersection of IPV and HIV, which has shown that women who have experienced partner violence are less likely to disclose their HIV status to a current partner (Tam, Amzel, & Phelps, 2015), and a broader disclosure framework that has presented individual, dyadic and social consequences of disclosing concealable identities (Chaudoir & Fisher, 2010). Women in the current study often held a number of socially stigmatized identities related to their experiences with violence, HIV, mental health and substance use. They have a great deal of experience in managing disclosures and as such have identified aspects of their identities in which the anticipated outcomes of disclosure are not consistent with their goals.

Limitations

The small sample size limits the generalizability of this study's findings. Additionally, most study participants were contacted for and/or participated in the

interviews in conjunction with a scheduled clinic visit. This limited engagement of some women (particularly those who were identified with poor adherence) as they did not consistently attend their scheduled clinic appointment. The experiences of those women who were not engaging with the clinic on any type of regular basis may differ from those who were active in attending the clinic appointments and adhering to treatment protocols.

Data collection for the two phases of this study took place over a two-year period between March 2014 and February 2016, therefore there was up to a year between the self-reported survey in Phase 1 and the invitation to complete the in-depth interview in Phase 2. Given the time span between phases, participants experienced a variety of life events during the time between phases. Participants reported ending abusive relationships, starting new relationships that were healthy or abusive, relapsing into drug use, and entering substance abuse treatment programs. All of these historical changes may have impacted the ability to integrate findings from the two data collection phases. Chronologic distance from the immediacy of an abusive relationship may have contributed to some participants' minimization of the impact of IPV on their daily activities.

While the researchers had a great deal of survey and medical record information about the participants, we were challenged when identifying women for interviews who did not report any mental health symptoms or previous diagnosis. While not all women reported active symptomology on the survey, all nine participants had a documented mental health diagnosis and/or were involved in psychiatric follow-up sessions through the clinic (See Table 4.2). While this sample characteristic limits the generalizability of findings, it does demonstrate the importance of the factors identified on the SAVA syndemic framework for interventions with women who have an HIV diagnosis.

Implication for Practice

Our study's findings hold important clinical significance. Women's continued reluctance to discuss or identify as having experienced IPV despite having reported partner behaviors that fit the definitions of IPV indicates a need to further understand how framing of IPV during screening and referral may impact patients' disclosure and acceptance of referrals or other interventions. Trauma-informed care models that include universal education about the impact of violence and trauma on health is one strategy to advance women's comfort level with discussing these personal issues and with accepting referrals for follow-up care and community programs (SAMHSA, 2015; Machtinger, Cuca, Khanna, Rose, & Kimberg, 2015). The majority of participants in this analysis did not associate their experience with IPV with their health. Trauma-informed practices such as including universal education and standardized language related to the impact of violence and trauma on health, identification of traumatic events and its effects (i.e., PTSD, substance abuse), harm reduction and warm referrals (i.e., clinic providers contacting appropriate services with the woman such as domestic violence hotline and shelter information, legal services, sexual assault forensic services) can be used to help change the focus from disclosure to providing information, safety strategies and links to resources for safety planning, improved health and well-being (Bair-Merritt et al., 2014; Machtinger, Cuca, Khanna, Rose, & Kimberg, 2015; Miller et al., 2011; Nelson, Bougatsos, & Blazina, 2012; SAMHSA, 2015).

Participants in this study presented safety behaviors, adherence strategies, and the positive maternal and caregiving roles as important to them. These are relevant components to consider when designing both clinic and community-based interventions. The importance of understanding patient priorities and including them in care planning

has shown promise in primary and acute care settings to improve outcomes including patient satisfaction, decreased health care utilizations, and improved medication adherence (Canadian Agency for Drugs and Technologies in Health [CADTH], 2015). Women's reluctance to accept the role or label of victim or survivor of IPV may indicate that addressing adherence through patient identified barriers in addition to provider-identified barriers and priorities may be beneficial. In this study's sample, many women identified strongly with their roles as parents or caregivers. Similarly, other research has shown that women are often willing to disclose IPV in order to provide safety for a child or to protect their safety and their child's safety when pregnant (Rasool, 2016; Spangaro et al., 2016). Leveraging women's desires to be a good mother may be another way in which to introduce the idea of violence as an issue of concern. Framing messages related to IPV as related not only to women's health, but also to their ability to fulfill the roles important to them may be useful.

Lastly, women did highlight the importance of multiple SAVA syndemic factors in their treatment and care. Substance abuse and mental health symptoms were viewed individually and in combination to affect women's ability to adhere to their HIV care. This finding supports the need to holistically address multiple contextual factors in addressing the HIV epidemic (Singer, 1996, 2009). Women in this study did not identify IPV as a factor impacting their own health, and they identified the criminal justice system as a primary source of support for issues related to IPV. This was in contrast to issues of substance abuse that even women who had not used illicit drugs, or had several years of sobriety were clearly able to link adherence to treatment and care. Similarly, women were able to list multiple sources of support and interventions to address issues of substance abuse such as recovery groups, individual therapy, social support persons (both formal

such as a Narcotic Anonymous sponsor and informal such as close friends of family) and medication programs. Tapping into already established structures such as support groups and individual therapy sessions to incorporate information-sharing and creating safe places to discuss safety and healthy relationships and provide resources might be useful in improving adherence for IPV survivors.

Implications for Research

While the SAVA syndemic framework provides a lens through which to examine the multiple issues facing urban women living with HIV/AIDS, our results do present challenges with translating these research questions and findings into practice. While other research has highlighted the associations between substance use, mental health, IPV and HIV care, not a great deal of attention has been paid to how women experience and prioritize these factors in their lives. Women's choices regarding what labels and roles they identified with varied, and was not universally inclusive of the SAVA concepts they reported in survey measures. As such, identifying individual and cumulative effects of these factors becomes difficult if research measures of socially stigmatized identities are not consistent with what women identify with in practice. Syndemic theory provides an excellent framework for assuring that care is taken to address the multiple intertwined issues facing urban women, but translating these issues into realistic practices may require attention to individual perspectives and goals, not simply including a policy or intervention for each factor. Additional research to examine whether both quantitative and qualitative reporting of labels and identities is similar or dissimilar over time would help to address the timing issues raised in this sample. Understanding how the roles and identities that women associate with change over time and whether these roles directly or indirectly impact their adherence to HIV care and subsequent treatment outcomes would

provide insight to tailoring interventions to appropriate clinical populations.

Conclusions

The women who participated in this study faced a wide range of competing issues that impact their health. They managed these priorities by asserting control over the factors that they could, which included close control over aspects of their identity— aspects that they acknowledged during the study and those that they shared more widely. Women were much more willing to accept and share some roles (caregiver, “in recovery”) than they were others (“victim/survivor” of IPV, “HIV-positive”). This disconnect suggests that traditional one-time IPV screening at patient intake may not be sufficient to address the underlying pervasive issue of IPV, particularly in an urban environment in which patients face the impact of multiple social determinants of health regularly. In order to wholly address the disparities in HIV risk and outcomes noted by The White House in their 2013 interagency report and the 2015 National HIV/AIDS Strategy, additional methods to address trauma in the context of health are required (Interagency Federal Working Group, 2013; White House Office of National AIDS Policy, 2015). Our results suggest that simply including traditional IPV screening components in HIV care settings may not address the underlying violence issues if women are not identifying or recognizing IPV as a primary concern for themselves and their health. Trauma-informed care approaches that focus on promoting safe environments, liberally sharing safety planning and support resources with all patients, and repeated routine discussions of trauma and violence as health care concerns may be helpful in addressing the negative clinical impacts of IPV in HIV clinical settings. The syndemic framework guided this study and was useful in identifying social factors impacting care, but does have limitations in direct interaction with patients who may not

identify with all aspects of the framework.

References

- Amar, A. F., Bess, R., & Stockbridge, J. (2010). Lessons from families and communities about interpersonal violence, victimization, and seeking help. *Journal of Forensic Nursing, 6*(3), 110-120. doi:10.1111/j.1939-3938.2010.01076.x
- Babor, T. F., Higgins-Biddle, J. C., Saunders, J. B., & Monteiro, M. G. (2001). *The alcohol use disorders identification test: Guidelines for use in primary care*. Geneva: World Health Organization.
- Bair-Merritt, M. H., Lewis-O'Connor, A., Goel, S., Amato, P., Ismailji, T., Jelley, M., . . . Cronholm, P. (2014). Primary care-based interventions for intimate partner violence: A systematic review. *American Journal of Preventative Medicine, 46*(2), 188-194. doi:10.1016/j.amepre.2013.10.001
- Banner, D. J. (2010). Qualitative interviewing: Preparation for practice. *Canadian Journal of Cardiovascular Nursing, 20*(3), 27-34.
- Biello, K. B., Oldenburg, C. E., Safren, S. A., Rosenberger, J. G., Novak, D. S., Mayer, K. H., & Mimiaga, M. J. (2016). Multiple syndemic psychosocial factors are associated with reduced engagement in HIV care among a multinational, online sample of HIV-infected MSM in Latin America. *AIDS Care, 28 Suppl 1*, 84-91. doi:10.1080/09540121.2016.1146205
- Blackstock, O. J., Blank, A. E., Fletcher, J. J., Verdecias, N., & Cunningham, C. O. (2015). Considering care-seeking behaviors reveals important differences among HIV-positive women not engaged in care: Implications for intervention. *AIDS Patient Care and STDs, 29 Suppl 1*, S20-26. doi:10.1089/apc.2014.0271

- Blanchard, E. B., Jones-Alexander, J., Buckley, T. C., & Forneris, C. A. (1996). Psychometric properties of the PTSD Checklist (PCL). *Behavioral Research and Therapy*, 34(8), 669-673. doi:0005-7967(96)00033-2 [pii]
- Blank, A. E., Fletcher, J., Verdecias, N., Garcia, I., Blackstock, O., & Cunningham, C. (2015). Factors associated with retention and viral suppression among a cohort of HIV+ women of color. *AIDS Patient Care and STDs*, 29 Suppl 1, S27-35. doi:10.1089/apc.2014.0272
- Bohn, M. J., Babor, T. F., & Kranzler, H. R. (1995). The alcohol use disorders identification test (AUDIT): Validation of a screening instrument for use in medical settings. *Journal of Studies on Alcohol*, 56(4), 423-432.
- Campbell, J., Rose, L., Kub, J., & Nedd, D. (1998). Voices of strength and resistance: A contextual and longitudinal analysis of women's responses to battering. *Journal of Interpersonal Violence*, 13, 743-762. doi:10.1177/088626098013006005
- Campbell, J. C., Webster, D. W., & Glass, N. (2009). The danger assessment: Validation of a lethality risk assessment instrument for intimate partner femicide. *Journal of Interpersonal Violence*, 24(4), 653-674. doi:10.1177/0886260508317180
- Canadian Agency for Drugs and Technologies in Health (CADTH). (2015) Patient- and family-centered care initiatives in acute care settings: A review of the clinical evidence, safety and guidelines. Ottawa (ON): Canadian Agency for Drugs and Technologies in Health.
- Canady, R. B., Stommel, M., & Holzman, C. (2009). Measurement properties of the centers for epidemiological studies depression scale (CES-D) in a sample of African American and non-Hispanic White pregnant women. *Journal of Nursing Measurement*, 17(2), 91-104.

- Chaudoir, S. R., & Fisher, J. D. (2010). The disclosure processes model: Understanding disclosure decision making and postdisclosure outcomes among people living with a concealable stigmatized identity. *Psychological Bulletin*, 136(2), 236-256. doi:10.1037/a0018193
- Corbin, J., & Strauss, A. (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Los Angeles: Sage Publications.
- DeLucia, C., Bergman, B. G., Formoso, D., & Weinberg, L. B. (2015). Recovery in narcotics anonymous from the perspectives of long-term members: A qualitative study. *Journal of Groups in Addiction & Recovery*, 10(1), 3-22. doi:10.1080/1556035X.2014.969064
- Friedman, M. R., Stall, R., Silvestre, A. J., Wei, C., Shoptaw, S., Herrick, A., . . . Plankey, M. W. (2015). Effects of syndemics on HIV viral load and medication adherence in the multicentre AIDS cohort study. *AIDS*, 29(9), 1087-1096. doi:10.1097/qad.0000000000000657
- Galea, S., & Vlahov, D. (2002). Social determinants and the health of drug users: Socioeconomic status, homelessness, and incarceration. *Public Health Reports*, 117 Suppl 1, S135-145.
- Gilbert, L., Raj, A., Hien, D., Stockman, J., Terlikbayeva, A., & Wyatt, G. (2015).). Targeting the SAVA (substance abuse, violence, and AIDS) syndemic among women and girls: A global review of epidemiology and integrated interventions. *Journal of Acquired Immune Deficiency Syndrome*, 69 Suppl 2, S118-127. doi:10.1097/qai.0000000000000626

- Gillum, T. L. (2009). Improving services to African American survivors of IPV: From the voices of recipients of culturally specific services. *Violence Against Women*, 15(1), 57-80. doi:10.1177/1077801208328375
- Gonzalez-Guarda, R. M., Florom-Smith, A. L., & Thomas, T. (2011). A syndemic model of substance abuse, intimate partner violence, HIV infection, and mental health among Hispanics. *Public Health Nursing*, 28(4), 366-378. doi:10.1111/j.1525-1446.2010.00928.x
- Gonzalez-Guarda, R. M., McCabe, B. E., Florom-Smith, A., Cianelli, R., & Peragallo, N. (2011). Substance abuse, violence, HIV, and depression: An underlying syndemic factor among Latinas. *Nursing Research*, 60(3), 182-189. doi:10.1097/NNR.0b013e318216d5f4
- Gonzalez-Guarda, R. M., McCabe, B. E., Leblanc, N., De Santis, J. P., & Provencio-Vasquez, E. (2016). The contribution of stress, cultural factors, and sexual identity on the substance abuse, violence, HIV, and depression syndemic among Hispanic men. *Culture Diversity and Ethnic Minority Psychology*. doi:10.1037/cdp0000077
- Gonzalez-Guarda, R. M., Peragallo, N., Urrutia, M. T., Vasquez, E. P., & Mitrani, V. B. (2008). HIV risks, substance abuse, and intimate partner violence among Hispanic women and their intimate partners. *Journal of the Association of Nurses in AIDS Care*, 19(4), 252-266. doi:10.1016/j.jana.2008.04.001
- Hatcher, A. M., Smout, E. M., Turan, J. M., Christofides, N., & Stockl, H. (2015). Intimate partner violence and engagement in HIV care and treatment among women: A systematic review and meta-analysis. *AIDS*, 29(16), 2183-2194. doi:10.1097/QAD.0000000000000842

- Herrick, A. L., Lim, S. H., Plankey, M. W., Chmiel, J. S., Guadamuz, T. E., Kao, U., . . . Stall, R. (2013). Adversity and syndemic production among men participating in the multicenter AIDS cohort study: A life-course approach. *American Journal of Public Health, 103*(1), 79-85. doi:10.2105/ajph.2012.300810
- IBM. (2014). IBM SPSS Statistics for Windows (Version 23.0). Armonk, NY: IBM Corporation.
- Interagency Federal Working Group (2013). *Addressing the intersection of HIV/AIDS violence against women and girls and gender-related health disparities*. Washington, DC: The White House.
- Illangasekare, S. (2011). *The role of the intimate partner violence, HIV and substance abuse syndemic in women's mental health*. (Doctor of Philosophy Dissertation), Johns Hopkins University, Baltimore, Maryland.
- Illangasekare, S., Burke, J., Chander, G., & Gielen, A. (2013). The syndemic effects of intimate partner violence, HIV/AIDS, and substance abuse on depression among low-income urban women. *Journal of Urban Health*. doi:10.1007/s11524-013-9797-8
- Illangasekare, S. L., Burke, J. G., Chander, G., & Gielen, A. C. (2014). Depression and social support among women living with the substance abuse, violence, and HIV/AIDS syndemic: A qualitative exploration. *Women's Health Issues, 24*(5), 551-557. doi:10.1016/j.whi.2014.05.004
- Kuhns, L. M., Hotton, A. L., Garofalo, R., Muldoon, A. L., Jaffe, K., Bouris, A., . . . Schneider, J. (2016). An index of multiple psychosocial, syndemic conditions is associated with antiretroviral medication adherence among HIV-positive youth. *AIDS Patient Care and STDs, 30*(4), 185-192. doi:10.1089/apc.2015.0328

- Machtiger, E. L., Cuca, Y. P., Khanna, N., Rose, C. D., & Kimberg, L. S. (2015). From treatment to healing: The promise of trauma-informed primary care. *Women's Health Issues, 25*(3), 193-197. doi:10.1016/j.whi.2015.03.008
- Marshall, L. L. (1992). Development of the severity of violence against women scales. *Journal of Family Violence, 7*(2), 103-121.
- McFarlane, J., Parker, B., Soeken, K., & Bullock, L. (1992). Assessing for abuse during pregnancy. Severity and frequency of injuries and associated entry into prenatal care. *Journal of the American Medical Association, 267*(23), 3176-3178.
- Miller, E., Decker, M. R., McCauley, H. L., Tancredi, D. J., Levenson, R. R., Waldman, J., . . . Silverman, J. G. (2011). A family planning clinic partner violence intervention to reduce risk associated with reproductive coercion. *Contraception, 83*(3), 274-280.
- Nelson, H. D., Bougatsos, C., & Blazina, I. (2012). Screening women for intimate partner violence: A systematic review to update the US Preventive Services Task Force recommendation. *Annals of Internal Medicine, 156*(11), 796-808.
- Onwuegbuzie, A., & Teddlie, C. (2003). *A framework for analyzing data in mixed methods research*. Thousand Oaks, CA: Sage Publications.
- Patton, M. (2002). *Qualitative research & evaluation methods* (3rd ed.). Thousand Oaks, CA: Sage Publications.
- Postmus, J. L. (2015). Women from different ethnic groups and their experiences with victimization and seeking help. *Violence Against Women, 21*(3), 376-393. doi:10.1177/1077801214568254

- Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*.
doi:10.1177/014662167700100306
- Rasool, S. (2016). Help-seeking after domestic violence: The critical role of children. *Journal of Interpersonal Violence*, 31(9), 1661-1686.
doi:10.1177/0886260515569057
- ResearchWare. (2013). *HyperRESEARCH 3.5.2*. ResearchWare, Inc.
- Ruggiero, K. J., Del Ben, K., Scotti, J. R., & Rabalais, A. E. (2003). Psychometric properties of the PTSD Checklist-Civilian Version. *Journal of Traumatic Stress*, 16(5), 495-502. doi:10.1023/A:1025714729117
- Saldana, J. (2013). *The coding manual for qualitative researchers*. Thousand Oaks, CA: Sage Publications.
- Sandelowski, M. (1993). Rigor or rigor mortis: The problem of rigor in qualitative research revisited. *Advances in Nursing Science*, 16(2), 1-8.
- Sandelowski, M. (1995). Sample size in qualitative research. *Research in Nursing and Health*, 18(2), 179-183.
- Sandelowski, M. (2000). Combining qualitative and quantitative sampling, data collection, and analysis: Techniques in mixed-method studies. *Research in Nursing and Health*(23), 246-255.
- Schafer, K. R., Brant, J., Gupta, S., Thorpe, J., Winstead-Derlega, C., Pinkerton, R., . . . Dillingham, R. (2012). Intimate partner violence: A predictor of worse HIV outcomes and engagement in care. *AIDS Patient Care and STDs*, 26(6), 356-365.
doi:10.1089/apc.2011.0409

- Siemieniuk, R. A., Krentz, H. B., Miller, P., Woodman, K., Ko, K., & Gill, M. J. (2013). The clinical implications of high rates of intimate partner violence against HIV-positive women. *Journal of Acquired Immune Deficiency Syndrome*, 64(1), 32-38. doi:10.1097/QAI.0b013e31829bb007
- Singer, M. (1994). AIDS and the health crisis of the U.S. urban poor: The perspective of critical medical anthropology. *Social Science & Medicine*, 39(7), 931-948.
- Singer, M. (1996). A dose of drugs, a touch of violence, A case of AIDS: Conceptualizing the SAVA syndemic. *Free Inquiry in Creative Sociology*, 24(2), 99-110.
- Singer, M. (2009). *Introduction to syndemics: A Systems approach to public and community health*. San Francisco, CA: Jossey-Bass.
- Skinner, H. A. (1982). The drug abuse screening test. *Addiction Behavior*, 7(4), 363-371.
- Sokoloff, N. J., & Dupont, I. (2005). Domestic violence at the intersections of race, class, and gender: Challenges and contributions to understanding violence against marginalized women in diverse communities. *Violence Against Women*, 11(1), 38-64. doi:10.1177/1077801204271476
- Spangaro, J., Koziol-McLain, J., Zwi, A., Rutherford, A., Frail, M. A., & Ruane, J. (2016). Deciding to tell: Qualitative configurational analysis of decisions to disclose experience of intimate partner violence in antenatal care. *Social Science and Medicine*, 154, 45-53. doi:10.1016/j.socscimed.2016.02.032
- Substance Abuse and Mental Health Service Administration (SAMHSA). (2015). *Trauma-informed approach and trauma-specific interventions*. Washington, DC: Author.

- Sylaska, K. M., & Edwards, K. M. (2014). Disclosure of intimate partner violence to informal social support network members: A review of the literature. *Trauma Violence and Abuse, 15*(1), 3-21. doi:10.1177/1524838013496335
- Tam, M., Amzel, A., & Phelps, B. R. (2015). Disclosure of HIV serostatus among pregnant and postpartum women in sub-Saharan Africa: A systematic review. *AIDS Care, 27*(4), 436-450. doi:10.1080/09540121.2014.997662
- Thorne, S., Kirkham, S. R., & MacDonald-Emes, J. (1997). Interpretive description: A noncategorical qualitative alternative for developing nursing knowledge. *Research in Nursing and Health, 20*(2), 169-177.
- Tillman, S., Bryant-Davis, T., Smith, K., & Marks, A. (2010). Shattering silence: exploring barriers to disclosure for African American sexual assault survivors. *Trauma Violence Abuse, 11*(2), 59-70. doi:10.1177/1524838010363717
- Tsai, A. C., & Venkataramani, A. S. (2016). Syndemics and health disparities: A methodological note. *AIDS and Behavior, 20*(2), 423-430. doi:10.1007/s10461-015-1260-2
- White House Office on National AIDS Policy. (2015). *The national HIV/AIDS strategy: Updated to 2020*. Washington, DC: The White House.
- Williams, D. R. (2008). Racial/ethnic variations in women's health: The social embeddedness of health. *American Journal of Public Health, 98*(9 Suppl), S38-47.

Table 4.1

Demographic Characteristics of Interview Participants

Age ^a	43 (25-57)
Race ^b	
Black	7 (78)
White	1 (11)
Mixed/other	1 (11)
Education level ^b	
8 th grade or less	1 (11)
Some high school	2 (22)
High school diploma/GED	2 (22)
Some college	3 (33)
Associate's/vocational degree	1 (11)
Bachelor's/4 year degree	0 (0)
Graduate Work/Degree	0 (0)
Insurance type ^b	
Public insurance	9 (100)
Private	0 (0)
Currently caring for child(ren) under 18 ^b	
Yes	3 (33)
No	6 (67)
Has had any children ^b	
Yes	7 (78)
No	2 (22)
Employed ^b	
Yes	3 (33)
No	6 (67)
Current/most recent relationship partner gender ^b	
Male	8 (89)
Female	1 (11)
^a median (range)	
^b n (%)	

Table 4.2

SAVA Factors Endorsed by Participants on Survey Measures (Survey), Documented by a Health Care Provider in Medical Records (MRA) or Noted by Participants to be Associated with HIV Care During Interviews (Interview)

<i>Participant Information</i>			SAVA Factors											
			<i>IPV</i>			<i>Drug Abuse</i>			<i>Alcohol Abuse</i>			<i>Mental Health</i>		
			Survey	MRA	Interview	Survey	MRA	Interview	Survey	MRA	Interview	Survey	MRA	Interview
<i>Poor HIV control group</i>	475	28/M	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓
	536	43/B	✓			✓	✓	✓		✓			✓	
	596	57/B	✓							✓			✓	
	676	35/W	✓			✓		✓				✓	✓	✓
<i>Good HIV control group</i>	653	46/B	✓		✓	✓	✓					✓	✓	
	743	25/B	✓					✓				✓	✓	✓
	745*	50/B	✓		✓			✓	✓			✓	✓	✓
	746	51/B	✓										✓	
	823	25/B	✓	✓						✓		✓	✓	

Notes: W: white; B: black; M: multiple; MRA: medical records abstraction

All participants were asked in survey and interview about each SAVA factor; positive survey results indicated above were quantified as

follows:

IPV: past year, any positive response to an item on the Abuse Assessment Screen or any positive response to a moderate physical, severe physical or sexual violence item on the Severity of Violence Against Women Scale

Mental health: Score of >44 on the Posttraumatic Checklist- Civilian (past month), Score >15 on the Center for Epidemiologic Studies-Depression (past two weeks)

Substance abuse: past year, Positive response to item 1 on the Drug Abuse Screening Test (“Have you used drugs other than those required for medical reasons?”)

Alcohol abuse: past six months, Score of >7 on the Alcohol Use Disorders Identification Tool

*Participant not prescribed antiretroviral therapy has a detectable viral load and CD4 count >200 classified as “good control” based on adherence to current treatment plan.

CHAPTER FIVE: DISCUSSION

Intimate partner violence (IPV) has been identified as an important risk factor for HIV acquisition among women. More recently, a small but growing body of literature has presented IPV as a risk factor for later entry to HIV care, decreased rates of ART use, and poorer ART adherence. The overall purpose of this dissertation was to examine the impact of IPV on HIV care adherence, and subsequent treatment outcomes among a sample of urban women attending an HIV-specialty clinic in Baltimore, Maryland. The SAVA syndemic framework was used to approach three specific aims, including determining the prevalence of IPV and other syndemic factors—mental health symptoms, substance use—in a sample of urban women living with HIV (Aim 1); identifying associations between IPV, mental health, substance use and HIV treatment adherence, and disease progression (Aim 2); and exploring women’s own perceptions of the impact of SAVA syndemic factors on their health (Aim 3). For this purpose, 239 women were recruited from an urban HIV clinic, consented to complete a self-administered survey, and medical records review to address Aims 1 and 2. Nine of these women who reported past year IPV on survey measures subsequently participated in individual in-depth interviews in order to address Aim 3. A brief summary of key findings and detailed discussions of their individual and combined contribution to the literature are presented in this chapter. This is followed by study limitations and strengths as well as implications for practice, policy, theory and research.

Past Year Report of IPV

We found a significantly higher past-year prevalence (51% versus 27%) of IPV when compared to the previous estimate from the study clinic (Illangasekare et al., 2012).

This is likely a manifestation of difference in measurement. The prior study used the Partner Violence Screen (PVS), a three-item measure of IPV with one item for physical abuse, one item on feeling safe in a current relationship, and one item about ongoing violence from a previous partner (Feldhaus et al., 1997). For this current study, we used multiple measures of IPV to estimate past year prevalence. This decision was made in order to examine the underlying hypothesis that diverse forms of violence independently affect immune functioning and subsequent HIV disease progression. Participants first completed the Abuse Assessment Screen (a four-item screening tool that includes one item each for psychological, physical and sexual abuse, and one general relationship safety item) as an initial part of this study's eligibility criteria. Survey participants also completed the Severity of Violence Against Women Scale (SVAWS). The SVAWS is a 46-item tool measuring nine domains—symbolic violence, threats of mild violence, threats of moderate violence, threats of serious violence, mild violence, minor violence, moderate violence, serious violence, and sexual violence (Marshall, 1992). Each SVAWS item measures a specific violent behavior such as hitting, kicking, name calling, or forced sex (see Appendix C) as compared to more general clinical screening tools such as the AAS and the PVS.

The 51% IPV prevalence among women in this study was comparable to the 2012 meta-analysis estimate of 55% among women living with HIV (Machtiger, Wilson, Haberer, & Weiss, 2012). The same meta-analysis found the IPV prevalence higher among women living with HIV when compared to overall IPV prevalence among women in the U.S. (55% versus 36%). In addition to the 2012 meta-analysis, multiple literature reviews have commented on the challenges in comparing prevalence estimates given the

variations in measurement and sampling techniques (Campbell et al., 2008; Machtinger et al., 2012; Maman, Campbell, Sweat, & Gielen, 2000). While comparing screening methods was not an aim of this study, it should be noted that inclusion of items from the moderate violence, serious violence, and sexual violence categories from the SVAWS did contribute to our prevalence estimate. Ninety-two women (38%) screened as positive for past year IPV on the AAS, and an additional 30 women (13%) were as having experienced past year IPV based on answers provided to perpetrator specific behaviors on the SVAWS. The reporting across diverse measures demonstrates that not all women having experienced past year IPV self-identify as a victim/survivor on screening items such as those on the AAS, but with by asking items on validated measures that described threats, physical and sexually abusive behaviors by partners, women reported IPV within the past year.

Impact of IPV on HIV Treatment Outcomes

The key finding from this study is the relationship between IPV and CD4 count; women reporting past year IPV were 3.5 times more likely to have a CD4 count >200 compared to women not reporting past year IPV when controlling for demographics, viral suppression, mental health and substance abuse. This finding adds to the small body of literature on the impact of IPV on the overall health status of women living with HIV (Illangasekare et al., 2012; Rose, House, & Stepleman, 2010; Schafer et al., 2012; Siemieniuk et al., 2013). The importance of understanding the potential physiologic pathways such as chronic inflammation and immune dysregulation through which trauma such as IPV may affect CD4 count presents an immediate need for additional research to improve women's health. Only through having a greater understanding of these

mechanisms can we identify opportunities to intervene in the biologic pathways in addition to the behavioral pathways such as adherence, substance use, and sexual risk behaviors. These biologic pathways currently present an untapped potential source of improving outcomes for patients living with HIV.

Despite a significant independent relationship between IPV and low CD4 counts, the impact of IPV on having a detectable viral load was less clear. The literature describing the impact of IPV on viral suppression is still quite sparse. A 2015 meta-analysis included seven studies that reported on a laboratory-based viral load measurement, and definitions of viral suppression varied across these studies from levels of <500 copies/ml to <200 copies/ml based on the laboratory testing and clinically used definitions in use at the time of data collection (Blank et al., 2015; Espino et al., 2015; Hatcher, Smout, Turan, Christofides, & Stockl, 2015; Illangasekare et al., 2012; Rose et al., 2010; Schafer et al., 2012; Siemieniuk et al., 2013; Sullivan, Messer, & Quinlivan, 2015). Individually, three of these studies found significantly lower rates of viral suppression among women reporting IPV (Espino et al., 2015; Rose et al., 2010; Siemieniuk et al., 2013), while the remaining studies had non-significant findings. When combined in meta-analysis, the data from these seven studies showed that women reporting IPV had a 36% decreased odds of viral suppression when compared to women who did not report IPV (OR: 0.64, 95% CI: 0.46–0.90) (Hatcher et al., 2015). While our multivariable results for the viral suppression outcome did not maintain statistical significance when controlling for demographic and SAVA syndemic factors, the bivariate relationship between IPV and viral suppression was not dissimilar (OR: 0.54, 95% CI: 0.30–0.99, $p=0.05$) to those reported by Hatcher and colleagues (2015) and Schafer and

colleagues (2012), however less precise. The loss of significance when other factors were added to the model may be a factor of sample size.

In contrast to the CD4 count and viral load outcomes, we did not find any associations between IPV and missed clinic visits. Two prior studies also failed to find a relationship between IPV and missed HIV specialty care clinic visits (Illangasekare et al., 2012; Schafer et al., 2012). However, Illangasekare and colleagues (2012) did note that women who had experienced IPV were twice as likely to have missed gynecology appointments, indicating that perhaps not all clinic visit types are equally attended or missed. While missed gynecology visits may not contribute largely to variation in viral suppression, it does present opportunities for clinician and researchers to better understand what makes HIV care similar or different from other types of care and establish improved practice models that minimize re-traumatization in order to improve overall patient adherence and outcomes.

Impact of Multiple Syndemic Factors on HIV Treatment Adherence: Substance Abuse and Mental Health

Using a syndemic theory, we also examined other key factors associated with the SAVA syndemic in this study's sample. Consistent with prior research, we found high rates of drug and alcohol use as well as reported symptoms associated with mental health conditions. All of these factors were individually associated with IPV. We did not find consistency in these factors being related to the three HIV adherence and treatment outcomes examined (CD4 count <200, detectable viral load, missing >25% of past year scheduled clinic visits).

A similar study examined and presented findings in regards to the impact of

PTSD on immune and inflammatory markers in a mixed gender clinical sample of patients living with HIV, and found a relationship between patient's reporting symptoms of PTSD and a series of immune markers including CD8+ T cells, CD8 naïve cells, and CD8 memory cells (Siyahhan Julnes et al., 2016). They did not find a difference in mean CD4 count between those who met criteria for PTSD and those who did not using a guided interview screening tool administered by a board-certified psychiatrist, but their results present a potential pathway through which immune function may be affected by trauma (specifically PTSD). In this current study, we also did not find PTSD to be directly associated to CD4 counts, and were unable to measure additional biomarkers that may mediate this relationship. These differences may have been difficult to detect in our sample in part because of the high correlation between IPV and PTSD. Women in our sample were 3.37 (95% CI: 1.74–6.53; $p < 0.001$) times more likely to report past month PTSD symptoms if they also reported past year IPV and similarly, 4.01 (95% CI: 2.11–7.62; $p < 0.001$) times more likely to report past two week symptoms of depression.

Reporting past two week symptoms of depression was associated with having missed >25% of scheduled clinic visits within the past year (aOR: 2.330, 95% CI: 1.012–5.362, $p = 0.047$). In order to further examine pathways through which IPV may impact HIV treatment adherence and outcomes, we assessed mediation effects of symptoms of depression and PTSD on the relationship between IPV and each primary outcome. Only one of these pathways showed a significant mediation effect. Symptoms of depression significantly decreased the relationship between IPV and missing >25% of past year clinic visits (OR: 1.571, 95% CI: 0.937–2.633 versus OR: 1.359 95% CI: 0.790–2.339, Sobel: 2.04, $p = 0.041$). As the association of IPV with missed clinic visits was not

initially significant, interpreting the impact of depression on the association is limited. However, the consistent relationship between depression and missed clinic visits highlights the importance of multiple interconnected factors affecting adherence and health outcomes among women living with HIV.

While our findings differ from prior results which have shown that symptoms of both depression and PTSD have been directly associated with poorer HIV treatment outcomes including premature death and more rapid CD4 count decline (Cruess et al., 2003; Ickovics et al., 2001; Ickovics et al., 2006, Leserman, 2000, 2003) both PTSD and depression are also notably more prevalent in samples reporting IPV than those that do not (Bonomi & Glass, 2008; Bonomi et al., 2009; Campbell, 2002; Gielen et al., 2005; Illangasekare, 2011; Illangasekare et al., 2013; Machtinger et al., 2012). The high rates of mental health symptoms and IPV in this sample may limit the ability to parse out the differential effects of each aspect. An overall limitation of the available literature on HIV, PTSD, depression and IPV is that studies examining one phenomenon often do not measure each of the others. As such, while overall conclusions can be inferred regarding the existence of a relationship between traumatic experiences such as IPV and poorer HIV treatment outcomes, the differential effects of individual trauma or the biologic and behavioral responses to trauma are difficult to discern from existing research including this study.

Substance use was prevalent in our sample, with 50% of participants having either self-reported or provider-documented illicit drug use in the past year (compared to 10% of the U.S. general population), and had a direct impact on the missed clinic visit outcome (aOR: 2.826, 95% CI: 1.525–5.236, $p=0.001$) (National Council for Health

Statistics, 2016). Alcohol use was also far more prevalent in this our sample than in the general population (19% versus 6% of the U.S. general population) (National Council for Health Statistics, 2016). The relationship between drug and alcohol use and the HIV care has been previously documented, with substance use impacting entry into care, adherence to care and morbidity (Dale et al., 2016; Gwadz et al., 2016; Kuchinad et al., 2016; Nicholas et al., 2014; Vagenas et al., 2015). While alcohol abuse was not associated with negative HIV adherence and care outcomes in our sample, this current study's finding related to the impact of drug use on clinic visit attendance is congruent with prior research highlighting the challenges of engaging in care during periods of active substance use (Gwadz et al., 2016; Kuchinad et al., 2016; Nicholas et al., 2014). As with PTSD and depression, both drug and alcohol use were more commonly reported by participants who also reported past year IPV. These associations, while not novel to the literature, support the need for a multifactorial approach when designing interventions to improve HIV adherence and treatment outcome among SAVA syndemic affected women.

Women's Experiences: Minimizing IPV and Managing Labels

While a key finding from this study was the quantitative relationship between IPV and lower CD4 counts among urban women living with HIV, the women who participated in Phase 2 interviews ($n=9$) described their experiences differently. While some participants did share current or past IPV, they did not report that abusive partners interfered with attending clinic visits or taking medications. While participants selected for interviews were by design selected to cover the range of outcomes (CD4 count $>/<200$, viral load detectable/undetectable and missed visits $>/<25\%$), their reports that

IPV was not a driving factor in adherence was consistent with quantitative results, which did not link past year IPV with missing >25% of past year scheduled clinic visits, nor viral suppression in multivariable analysis.

Not only did women interviewed not associate IPV with their current HIV care, but they often minimized the violence in general during qualitative interviews when compared to their responses to quantitative survey measures. This discordance in reporting is consistent with a disclosure model proposed by Chaudoir and Fisher (2010). Women may have previously experienced negative outcomes such as victim-blaming from disclosure of IPV (Amar, Sutherland, Laughon, Bess, & Stockbridge, 2012; Rose et al., 2011; Sutherland, Fontenot, & Fantasia, 2014; Sylaska & Edwards, 2014). Further, disclosure of IPV is often met with questions about why a woman stays in an abusive relationship or assumes that leaving the relationship is the only safe option. These responses from formal and informal support systems to disclosures can perpetuate avoidance of further disclosure and contribute to a “downward spiral of concealment” (Chaudoir & Fisher, 2010). This disclosure process model also importantly includes cultural and social norms regarding what is disclosed, to whom and at what times as an outcome factor that will further factor into decisions regarding disclosure or concealment. Women in our sample may have had a variety of reasons for not identifying with or disclosing IPV during interviews that remain unknown to the research team, but prior research may provide some guidance in interpreting this discordance.

Our sample consisted primarily of urban African-American, low income women. This sample, while consistent with the clinic demographic may have contributed to their historical background, including prior experiences of discrimination and racism in ways

that further impacted their perceptions of violence and willingness to disclose to either formal or informal support systems (Flicker et al., 2011; Gillum, 2009; Paranjape, Tucker, McKenzie-Mack, Sokoloff & Dupont, 2005; Thompson, & Kaslow, 2007; Tillman, Bryant-Davis, Smith, & Marks, 2010). While we did not systematically capture previous experiences of historical abuse or neglect across the lifespan during quantitative survey measure or qualitative interviews, six of the nine woman interviewed did disclose childhood abuse and/or a past lifetime experiences of IPV—indicating that they may be accustomed to a level of violence in their lives, have accepted it as being “normal”, and help-seeking behaviors may be viewed as signs of weakness (Amar et al., 2012; Campbell, Rose, Kub & Nedd, 1998; Gillum, 2009; Postmus, 2015; Sokoloff & Dupont, 2005; Tillman et al., 2010). In addition to the SAVA syndemic factors directly inquired about, transactional sex and homelessness were also reported by more than one woman during qualitative interviews. These topics were not the primary focus on the analysis or results, however, it does suggest a high level of cumulative trauma experienced by participants as would be consistent with prior samples of women living with HIV (Brezing, Ferrara, & Freudenreich, 2015; LeGrand et al., 2015; Machtinger, Wilson, Haberer, & Weiss, 2012).

Time between participation in survey measures and in-depth interviews may also have contributed to the discrepancies in reporting of IPV. There was over a year between Phase 1 and Phase 2 data collection for some participants. During this time period, women reported ending abusive relationships, starting new relationships, entering substance abuse treatment programs, relapsing into active drug use, or being hospitalized for opportunistic infections. Particularly, the changes in relationship status may have led

to the limited discussion of IPV and the association with adherence and health during the in-depth interviews as it was seen as a past issue and not a current one. However, prior work has shown the effects of IPV on health and PTSD resulting from IPV and other trauma lasts long after the abuser is gone (Ford-Gilboe et al., 2015; Wuest et al., 2009; Wuest et al., 2010). The difference in data collection method may also have played a role. Prior research conducted in clinical settings found that screening using paper-and-pencil or computer-based methods resulted in higher rates of IPV and substance abuse disclosure than in-person screenings (Delker, Aharonovich, & Hasin, 2016; Rhodes et al., 2006; Trautman, McCarthy, Miller, Campbell, & Kelen, 2007).

While temporal distance from IPV may have played a role in women minimizing its impact on their lives and health, for both substance use or mental health issues, distance from an acute situation appeared to provide women a safe way to discuss these barriers to care. Women who had a history of substance abuse (some despite over a decade of abstinence) readily identified as “in recovery”, and were active in programs to maintain sobriety including Narcotics Anonymous, methadone or buprenorphine programs, and individual therapy. In contrast, there is not the ongoing easily accessible support for survivors of partner violence, nor a general community recognized and honored designation of “survivor” of except within small circles of IPV service providers. Again, lack of support systems and prior negative experiences with disclosures may have influenced women’s decisions to discuss these issues of IPV during the interviews (Flicker et al., 2011; Gillum, 2009; Illangasekare, 2011; Paranjape, Tucker, McKenzie-Mack, Sokoloff & Dupont, 2005; Thompson, & Kaslow, 2007; Tillman, Bryant-Davis, Smith, & Marks, 2010. Further, the study clinic has clear procedures in

place for addressing mental health and substance abuse, which are not standard for addressing issues of violence. This differential awareness and sensitivity regarding the issues may color what participants chose to discuss with the research team.

Despite being resistant to accept the label of victim/survivor of IPV during interviews, the participants readily identified with their roles as mothers or caregivers. Participants discussed taking steps to enter into treatment or adhere to HIV regimens in order to care for or be there for their children. The importance of the role of mother as a stressor and source of strength and pride for women experiencing violence has been previously noted in the literature (Jones & Vetere, 2016). Prior research has also shown a similar phenomenon in which women are willing to take actions such as involving the criminal justice system or leaving an abuser in order to protect their children (Jones & Vetere, 2016; Rasool, 2016; Zink, Elder, & Jacobson, 2003). The relationship between children and care seeking is not limited to the IPV literature. However, in the HIV literature, children have been found to be associated with decreased engagement in care (Blank et al., 2015; Mellins, Kang, Leu, Havens, & Chesney, 2003). Further work to examine if the relationship between children and HIV care engagement and adherence varies based on experiences of violence is needed.

Limitations and Strengths

The findings of this study must be interpreted within the context of its limitations. The cross-sectional nature of this study limits the ability to draw inferences regarding causality. The use of time limited self-reported variables within predefined windows (i.e., past year IPV, past year drug use, past month symptoms of PTSD, past two week symptoms of depression) helped to increase our ability to place variables within a

timeline, including our decision to test the mediation effects of symptoms of PTSD and depression on the relationship between IPV and CD4 count, viral load and missed clinic visits. A longitudinal design would have allowed a greater ability to assess potential causal relationships. However, the SAVA syndemic framework indicates that the relationships in question between substance abuse, intimate partner violence, HIV diagnosis and care are not simply a direct linear pathway. Figure 5.1 shows a depiction of the key domains of the SAVA syndemic (mental health, violence, substance use, and sexual risk taking behaviors) overlying the background of HIV (Draughon, 2015). In this model, each concept is shown with a direct relationship to each of the other concepts in the framework. While each individual SAVA construct has been previously linked to risk of HIV acquisition and/or challenges in entering or adhering to care more complex statistical methods such as structural equation modeling as utilized in a growing number of studies may provide future opportunities to examine these complex relationships (Coulter, Kinsky, Herrick, Stall, & Bauermeister, 2015; Halkitis et al., 2013; Mustanski, Andrews, Herrick, Stall, & Schnarrs, 2014; Wilson & Widom, 2011). Clarity in statistical modeling of syndemics has also recently been called for by Tsai & Venkataramani who argue that statistical models of syndemic that fail to include the interaction effects of each set of variables are not truly testing for the synergistic effects, but simply additive effects or in the case of summary scores, a “cumulative impact of adversity” that is even more challenging to interpret (2016). Examining the compounding effects of type and severity of IPV and other traumas on mental health symptoms and behavioral factors and the synergistic effects of these on physiologic processes such as inflammation and immune response with longitudinal studies is also imperative to a better understanding of

chronology. Mixed method studies that include opportunities to examine participant perceptions in addition to these statistical methods might provide the most comprehensive picture in understanding the SAVA syndemic and designing interventions to address its impact.

The use of self-reported measures may have introduced bias in the form of both issues with recall or social desirability. For instance, we noted that there was a proportion of participants who we identified on past year medical records review as having used illicit drugs ($n=28$, 12%) who did not answer ‘yes’ to having used illicit drugs on the survey measures. The use of computer-based, participant-enter data collection methods and confirmation of substance abuse reporting with medical records were steps taken to minimize these reporting biases (Delker, Aharonovich, & Hasin, 2016; Rhodes et al., 2006; Trautman, McCarthy, Miller, Campbell, & Kelen, 2007). Our choice to combine both self-report and medical records data into one “past year drug use” dichotomous variable may have over estimated the prevalence of past year substance abuse in the sample and decreased our ability to discern differences in outcomes between those who were truly engaging in continued substance use.

The use of survey measures as opposed to clinical diagnoses for mental health variables may have contributed to our findings by under or over-identifying participants with the underlying diagnosis. We chose measures for PTSD and depression that are both widely available and have been utilized in a variety of settings including other samples of abused women and/or African American women (Anderson, Stockman, Sabri, Campbell, & Campbell, 2015; Blanchard, Jones-Alexander, Buckley, & Forneris, 1996; Canady, Stommel, & Holzman, 2009; Radloff, 1977; Ruggiero, Del Ben, Scotti, & Rabalais,

2003; Searle et al., 2015). Of particular importance was the selection of a PTSD measure that did not require identification of one primary trauma for which responses must be keyed to. This decision allowed participants who had experienced multiple traumatic events or ongoing traumas such as IPV to complete survey measures without having to identify one specific instance or event in order to answer questions. While these survey methods may have increased sensitivity and decreased specificity compared to a diagnostic interview or documented diagnosis by a health care provider, they allowed us the ability to identify those participants currently experiencing symptoms (within the past month). This served to both minimize recall bias, and provide an opportunity to assess for mediation effects of mental health symptoms on the relationship between IPV and each of the three HIV adherence and treatment outcomes.

Use of medical records to measure in place of self-reported adherence or outcomes measures for each of our three outcomes provided additional validity to our results. The cross-sectional design and reliance on medical records data do present a challenge to establishing any temporality to the data. There was a small proportion of laboratory values ($n=16$, 6.3% for CD4 count; $n=9$, 3.8% for viral load) outside the one-year period in which other study variables (including IPV) were measured. The proportion of laboratory measures from more than one year prior to the survey was statistically similar across outcome measures (CD4 count ≤ 200 ; viral load detectable/undetectable; missed visit proportion $\leq 25\%$) and SAVA variables (IPV, PTSD, depression and substance use) so while this impedes generalizations regarding timing and causality, there is not reason to believe that it would otherwise systematically bias our results. Independent collection of blood samples during data collection to assure

consistency in timing of laboratory specimens in relations to survey measures could have strengthened the design and interpretation of findings. Inclusion of additional markers of inflammation or immune function could also be used to address the biologic versus behavioral impacts of IPV on HIV outcomes (see Figure 5.2).

While the missed clinic visit outcome was time bounded to be consistent with the survey measures of IPV and substance abuse, we were limited to access to one health system's records. Since receiving HIV care at the study clinic was part of the eligibility criteria for participation in this study, all participants had at least one scheduled visit in the past year. There was a group of women who were high utilizers of the health care system ($n=40$, 16.7% with more than one scheduled visit per week on average; $n=7$, 2.5% with more than two scheduled visits per week on average). This included women who received intensive substance abuse treatment programs (i.e., daily methadone or buprenorphine programs) through the Johns Hopkins Medical Institution (JHMI) system. As women may have received health care services outside the JHMI system, we might not have captured their "regular" clinic attendance patterns. We chose to include all scheduled visits (not just HIV care related visits), to obtain a more holistic picture of women's care attendance. As one previous study did find IPV to be associated with a greater likelihood of missed gynecologic visits, future work to examine the relationship between IPV and adherence to various types of clinic visits is warranted (Illangasekare et al., 2012).

The use of a primarily self-referred convenience samples for the study also limits our ability to generalize outside of the sample. Women who chose to approach the research team and participate in the study may have differed from those women who did

not. Human subjects' protection concerns limit the ability to utilize probability sampling methods given the small size of the overall clinic population. Larger multisite studies may be better able to achieve a representative sample. Similarly, for Phase 2, participants were selected for interviews using the quantitative data and a theoretical sampling frame based on key SAVA syndemic concepts. The nature of this small, explanatory phase of the study limits our ability to generalize regarding the perceptions even of the entire sample, much less all women living with HIV.

While power calculations based on results of relevant recent studies indicated that sample size was adequate to examine the primary aims of this study (See Appendix A), including determining the prevalence of IPV and assessing for relationships between IPV and the CD4 count/viral load, it likely limited the ability to explore additional aspects of the complex and often bidirectional or cyclic relationships between the SAVA syndemic factors including IPV, mental health symptoms, substance abuse, and HIV treatment outcomes.

Implications for Practice

The relationship between IPV and CD4 count presents an immediate clinical need to be investigated. Our results suggest that IPV impacts HIV disease progression. The case studies presented by Machtinger and colleagues (2015) in their publication "From Treatment to Healing: The Promise of Trauma-Informed Primary Care" highlighted the devastating impact that both past and current trauma can have on patients living with HIV. Alongside both our results and others that demonstrate differences in immune markers between patients who report violence or trauma and those that do not, these anecdotes become even more compelling (Hatcher et al., 2015; Siyahhan Julnes et al.,

2016).

While the SAVA framework and quantitative results from Phase 1 of this study identified multiple SAVA aspects impacting HIV adherence and treatment outcomes, the participants did not as readily identify these complex connections during Phase 2 interviews. The reluctance of Phase 2 interview participants to identify as having experienced partner violence during qualitative interviews and their consequent difficulty making direct connections between their IPV experiences and HIV treatment, presents challenges for clinician attempts at identifying women who may benefit from IPV specific service referrals, and ultimately thwarts efforts to address the impact that violence is having on women's HIV disease process. Consistent with prior research, our results suggest that computer-based screening for IPV may produce higher disclosure rates (Hussain et al., 2015; Klevens, Sadowski, Kee, Trick, & Garcia, 2012; Rhodes et al., 2006; Trautman et al., 2007). Use of computer-based screening methods may be one tool that can be added to clinical services to provide a holistic assessment of patient experiences. Computer-based screening methods utilized in conjunction with trauma-informed care approaches may also be particularly useful in the clinical context. Trauma-informed care approaches highlight that while screening is important, disclosures are not the ultimate goal of these programs and stress the importance of creating health care settings as safe spaces to discuss and obtain help for issues if needed (SAMHSA, 2015; Brezing, Ferrara, & Freudenreich, 2015; Machtiger, Cuca, Khanna, Rose, & Kimberg, 2015; Reeves, 2015). Providing routine opportunities for disclosure and normalizing discussions of the impact of trauma and violence on health and decreasing stigma within the context of health care issues might help women be more willing or able to identify

IPV as a factor in their own lives. Routine discussions of how violence affects health also provides opportunities for providers to share community and clinic IPV and trauma-related resources universally with all patients, and not just limited to those who disclose current or acute concerns with IPV.

Such trauma-informed programs move beyond traditional IPV screening efforts that focus on asking patients about current safety concerns and providing a one-time referral or phone number for IPV-related services. Machtinger and colleagues (2015) presented four main components to creating a trauma-informed HIV practice—foundation, environment, screen, and response. Foundation involves the need for the clinic leadership to support and build the necessary tools for systematically implementing trauma-informed practices. This includes building partnerships with community organizations (i.e., domestic violence shelters, hotlines, forensic nurse examiner programs), developing tools for use in medical records systems, and providing ongoing support and evaluation of clinic efforts. Environment builds from this foundation to develop a clinic space that is calm and supportive of patients and providers. This can include minimizing noise in waiting areas, providing privacy for patient check in/out, and keeping patients informed regarding wait times. Screening may include screening not only for current individual traumas (such as IPV), but also historical traumatic experiences and the sequella of trauma (such as substance use, suicidality, PTSD and depression). Response involves both on-site and off-site referrals for mental health services, use of the medical records system to track and repeat screenings, providing follow-up options, and utilizing warm referrals (where a clinician provides direct assistance in contacting other providers with the patient) to community partners for

additional services. Trauma-informed care models are increasingly being implemented in practice particularly in behavioral health and substance abuse treatment settings (SAMHSA, 2015; Morrison et al., 2015). The focus of trauma-informed programs on providing routine education to all providers and patients regarding the impact of trauma on health regardless of reported trauma disclosures may be particularly helpful in instances such as those we uncovered in qualitative data whereas women minimized their experiences with violence and its impact on their health. Our findings that the individual SAVA syndemic aspects of IPV, substance use, and mental health all impact some aspect of HIV care adherence or outcomes support the use of a multifaceted, systematic and interdisciplinary approach to addressing the complex outcomes of trauma. As nurses are a critical element of the health care system in providing care to patients living with HIV, and the importance of individual context in trauma-informed care models is fully congruent with nursing's holistic perspective of health, nurses are poised to become leaders in implementing compassionate trauma-informed practices in HIV care settings.

Implications for Policy

At the national policy level, there has been much recent attention given to disparities in HIV risk and care. The vision statement noted in the National HIV/AIDS Strategy clearly states:

“The United States will become a place where new HIV infections are rare, and when they do occur, every person, regardless of age, gender, race/ethnicity, sexual orientation, gender identity, or socio-economic circumstance, will have unfettered access to high quality, life-extending care, free from stigma and discrimination.” (The White House Office on National AIDS Policy, 2015).

In order to achieve this vision, an important action item is to address violence against women and girls, which contributes to poorer HIV adherence and treatment outcomes. Our findings adds important knowledge related to women's experiences and perceptions of the relationship between IPV and HIV care. While we found an association between IPV and having a CD4 count <200, we did not find the same relationship between IPV and viral load or missed clinic visits. There is potential for a physiologic pathway through which trauma directly relates to how future policy can begin to address trauma-induced disparities in care. Attention must be paid not only to adherence intervention and linkage to care, but also to a more comprehensive understanding of the physiology behind these processes.

Our finding regarding the discordance in women's reporting of IPV on survey measures and during follow-up interviews also has relevance to policy makers in determining what types and methods of IPV screening may be best suited for widespread clinical practice. Screening for IPV has been widely promoted by the American Nurses' Association for over a decade and additional nursing and medical specialty organizations have followed their lead in the interim years (American Medical Association, 2007; American Nurses Association, 2000; Emergency Nurses Association & International Association of Forensic Nurses, 2013), yet universal screening has not been consistently implemented (Ghandour, Campbell, & Lloyd, 2015; Paterno & Draughon, 2016). Two area in which barriers to screening has arisen as an issue in the literature are: 1) health care providers' lack of time or reimbursement for screening and 2) lack of knowledge, skills or resources by the provider in order to respond to positive screens (Ghandour, Campbell, & Lloyd, 2015; Jaffee, Epling, Grant, Ghandour, & Callendar, 2005; Paterno

& Draughon, 2016). Prior research has shown that screening without acknowledging positive screening results has limited ability to produce changes in outcomes (Gielen, Burke, McDonnell, Illangasekare, & Mahoney, 2010; Moyer & Force, 2013). Policy makers have begun to address the issue of time and payment in the Affordable Care Act provisions which call for “screening and brief counseling” for IPV to be a universally covered prevention intervention (Ghandour, Campbell, & Lloyd, 2015; Institute of Medicine, 2011; Patient Protection and Affordable Care Act, 2010). Computerized screenings have the potential to further address both concerns. Computerized screenings are of low resource intensity, and can be used to implement a variety of protocols including patient and provider initiated referral to services, lethality assessment and tailored risk messaging (Eden et al., 2015; Glass, Eden, Bloom, & Perrin, 2010). We found that less than half of the participants in our sample who triggered our safety risk protocols for suicide and intimate partner homicide consented to sharing of this information with their health care team. While we did not systematically collect data regarding reasons for declining this referral, our use of computer-based data collection allowed us to capture this data and provide resources based on a participant’s noted preference. With the goal of a comprehensive trauma-informed response being not simply to promote disclosures, but to increase awareness and provide resources to all patients, validated screening tools implemented via computer or online methods as part of the trauma informed care protocol may be one way to engage patients in this process. Computer-based screening and referrals via internet-based resources provides one option for patients and can be integrated into trauma-informed health care system responses to alert providers regarding responses, trigger referrals to appropriate on-site services, and

allow patients additional privacy and autonomy during the screening, disclosure and referral process (Eden et al., 2015; Glass, Eden, Bloom, & Perrin, 2010).

As trauma-informed care approaches are further developed and tested in clinical settings, their importance in HIV care settings should also be realized. In order to address the high prevalence of violence and trauma experienced by patients living with HIV, funding programs such as The Ryan White HIV/AIDS Program should consider incorporating trauma-informed care models in their service delivery. Such models directly speak to providing culturally sensitive, high quality care to all patients living with HIV and further the mission of the Ryan White Program of providing comprehensive HIV care to those who in greatest financial need.

Implications for Theory and Research

The SAVA syndemic theory guided the conduct of this study. We found the theory to be helpful in providing a broad overview of the factors that are important to consider when addressing HIV adherence and treatment outcomes among urban women. Syndemic theory highlights the importance of addressing multiple factors simultaneously as the combined effects of individual factors have a greater impact than their respective parts. The SAVA theoretical framework aligns closely with the holistic view of health and individualized responses to health from which nursing draws its underlying philosophies and is therefore apropos for use in nursing research. The often cyclic and symbiotic nature of the relationships presented by the theory, however, does become challenging to statistically test and interpret mathematically, and our initial conceptual framework presented in Chapter One (see Figure 1.1) fails to capture much of this nuance. In order to better understand the effects of these relationships in the lives of our

study participants, we employed multiple methods of data collection and analysis which allowed us to examine individual factors using statistical methods, but also to explore women's stories and perceptions of the individual and combined effects of the SAVA syndemic factors on their health. Similar application and assessment of the SAVA framework to both nursing and interdisciplinary research questions regarding patient entry and adherence to HIV is warranted.

Since the onset of this study, a more complete conceptual framework for envisioning the relationship between IPV and HIV susceptibility, acquisition, and disease progression was published. The 2013 model includes factors that we did not measure in the current study such as partner characteristics and risk behaviors, childhood sexual assault and separate but related pathways for acute inflammatory responses (such as to an individual instance of sexual assault or sexually transmitted infection), and chronic immune dysfunction as a result of prior trauma history (Campbell, Lucea, Stockman, & Draughon, 2013). An adaptation of this model is presented in Figure 5.2, including relationships demonstrated in the current study. This model combines HIV acquisition and disease progress into one outcome. While this helps to highlight the fact that trauma is important in assessing HIV risk both before and after diagnosis, it quickly adds to the complexity of the model. The use of more traditional stress and adaptation models might present alternate frameworks for examining risk of HIV acquisition and disease progression as separate outcomes. The factors presented in the Campbell model can be readily organized into a model similar to those presented in allostatic load literature (See Figure 5.3) including sources of stress (IPV, childhood sexual assault, partner behaviors, environment) and a series of individual responses to stress—physiological (including

both acute and chronic responses), psychological (PTSD, depression) and behavioral (substance use, adherence to care, other risk-taking behaviors), all of which in turn determine the ability of the individual to demonstrate adaption and allostasis over time (Berger, Juster, & Sarnyai, 2015; McEwen & Stellar, 1993; Sarnyai, Berger, & Jawan, 2016).

Participants' interpretation of the disparate impact of SAVA variables on their health also provides insight for future use of the framework. Women's reluctance to identify with certain roles or labels (i.e., victim or survivor of IPV, person living with HIV, addict, or alcoholic) may indicate that focusing attention on individual labels that are not immediately meaningful to a patient may present challenges to addressing these issues in both clinical and research settings. While use of measurement instruments that included specific behavioral items (i.e., hit, kicked, name calling, forced vaginal sex, etcetera) allowed us to utilize an inclusive definition of IPV and capture the experiences of those women who may not identify as being in an abusive relationship, yet still be subject to the negative physical and mental health consequences of that violence, it does not alleviate the issue of how women perceive violence in their lives. Had we not employed a mixed-methods technique during this study, we would not have been aware of the incongruities in how violence was perceived or defined by the research team and by the participants. Future use of the SAVA syndemic framework should take care to identify issues regarding how measurement tools may define individuals differently than they perceive themselves. While attention to measuring concepts as defined by the research community is needed to produce valid results, ensuring inclusion of participants' perspectives is particularly relevant in translating research into practice.

Perhaps most important to future research is the use of long-term longitudinal designs of representative probability samples to measure trauma and its impact on mental health, physiology and health behaviors over time in order to establish causation versus association. Inclusion of a range of laboratory markers to assess acute and chronic inflammatory responses to trauma may help to identify particular time points or conditions in which medical interventions may be beneficial in addition to behavioral interventions. Inclusion of multiple data sources, including qualitative data to provide patient context is key to assuring results can be translated into practice.

Summary

This research study aimed to better understand the relationship between IPV and HIV adherence and treatment outcomes among a sample of urban women. As such, this study adds to the limited body of literature examining the impact of IPV and trauma on adherence to HIV care and subsequent treatment outcomes. The impact of IPV on the HIV treatment outcome of CD4 count demonstrates the potential for direct physiological pathways between trauma and health. Longitudinal research focusing on lifetime experiences of trauma and including a combination of biologic, diagnostic and self-reported data are required to more completely understand the specific pathways and identify areas in which interventions can be most successfully developed and utilized.

Establishing trauma-informed clinic settings for patients living with HIV as well as within the related field of psychiatry and substance abuse treatment are steps that can be undertaken now to improve providers' understanding of and response to the SAVA syndemic in urban settings. A trauma-informed approach allows for incorporation of understanding that not all patients will perceive individual syndemic factors in the same

way. It also provides multiple opportunities for engaging patients in interventions to improve their health even in the absence of specific trauma disclosures.

References

- Amar, A. F., Sutherland, M., Laughon, K., Bess, R., & Stockbridge, J. (2012). Peer influences within the campus environment on help seeking related to violence. *Journal of the National Black Nurses Association*, 23(1), 1-7.
- American Medical Association. (2007). *Physicians' obligations in preventing, identifying, and treating violence and abuse*. Author.
- American Nurses' Association. (2000). *Position statement: Violence against women*. Author.
- Anderson, J. C., Stockman, J. K., Sabri, B., Campbell, D. W., & Campbell, J. C. (2015). Injury outcomes in African American and African Caribbean women: The role of intimate partner violence. *Journal of Emergency Nursing*, 41(1), 36-42.
doi:10.1016/j.jen.2014.01.015
- Berger, M., Juster, R. P., & Sarnyai, Z. (2015). Mental health consequences of stress and trauma: Allostatic load markers for practice and policy with a focus on Indigenous health. *Australas Psychiatry*, 23(6), 644-649. doi:10.1177/1039856215608281
- Blanchard, E. B., Jones-Alexander, J., Buckley, T. C., & Forneris, C. A. (1996). Psychometric properties of the PTSD checklist (PCL). *Behavioral Research and Therapy*, 34(8), 669-673. doi:0005-7967(96)00033-2 [pii]
- Blank, A. E., Fletcher, J., Verdecias, N., Garcia, I., Blackstock, O., & Cunningham, C. (2015). Factors associated with retention and viral suppression among a cohort of HIV+ women of color. *AIDS Patient Care and STDs*, 29 Suppl 1, S27-35.
doi:10.1089/apc.2014.0272

- Bonomi, A. E., Anderson, M. L., Reid, R. J., Rivara, F. P., Carrell, D., & Thompson, R. S. (2009). Medical and psychosocial diagnoses in women with a history of intimate partner violence. *Archives of Internal Medicine*, 169(18), 1692-1697. doi:10.1001/archinternmed.2009.292
- Bonomi, A. E., & Glass, N. (2008). Global WHO survey: Poor physical and mental health more prevalent among women who have experienced intimate partner violence. *Evidence Based Mental Health*, 11(4), 128. doi:10.1136/ebmh.11.4.128
- Brezing, C., Ferrara, M., & Freudenreich, O. (2015). The syndemic illness of HIV and trauma: Implications for a trauma-informed model of care. *Psychosomatics*, 56(2), 107-118. doi:10.1016/j.psych.2014.10.006
- Campbell, J. C. (2002). Health consequences of intimate partner violence. *Lancet*, 359(9314), 1331-1336. doi:10.1016/s0140-6736(02)08336-8
- Campbell, J. C., Baty, M. L., Ghandour, R. M., Stockman, J. K., Francisco, L., & Wagman, J. (2008). The intersection of intimate partner violence against women and HIV/AIDS: A review. *International Journal of Injury Control and Safety Promotion*, 15(4), 221-231. doi:10.1080/17457300802423224
- Campbell, J. C., Lucea, M. B., Stockman, J. K., & Draughon, J. E. (2013). Forced sex and HIV risk in violent relationships. *American Journal of Reproductive Immunology*, 69 Suppl 1, 41-44. doi:10.1111/aji.12026
- Canady, R. B., Stommel, M., & Holzman, C. (2009). Measurement properties of the centers for epidemiological studies depression scale (CES-D) in a sample of African American and non-Hispanic White pregnant women. *Journal of Nursing Measurement*, 17(2), 91-104.

- Chaudoir, S. R., & Fisher, J. D. (2010). The disclosure processes model: Understanding disclosure decision making and postdisclosure outcomes among people living with a concealable stigmatized identity. *Psychology Bulletin*, 136(2), 236-256. doi:10.1037/a0018193
- Coulter, R. W., Kinsky, S. M., Herrick, A. L., Stall, R. D., & Bauermeister, J. A. (2015). Evidence of syndemics and sexuality-related discrimination among young sexual-minority women. *LGBT Health*, 2(3), 250-257. doi:10.1089/lgbt.2014.0063
- Dale, S. K., Traeger, L., O'Cleirigh, C., Bedoya, C. A., Pinkston, M., Wilner, J. G., . . . Safren, S. A. (2016). Baseline substance use interferes with maintenance of HIV medication adherence skills. *AIDS Patient Care and STDs*, 30(5), 215-220. doi:10.1089/apc.2015.0340
- Delker, E., Aharonovich, E., & Hasin, D. (2016). Interviewer-administered TLFB vs. self-administered computerized (A-CASI) drug use frequency questions: a comparison in HIV-infected drug users. *Drug and Alcohol Dependence*, 161, 29-35. doi:10.1016/j.drugalcdep.2016.01.007
- Draughon, J. E. (April 2015). *Sex, drugs, & HIV: Nursing science to achieve an AIDS free generation*. Paper presented at the Western Institute for Nursing, Albuquerque, NM.
- Eden, K. B., Perrin, N. A., Hanson, G. C., Messing, J. T., Bloom, T. L., Campbell, J. C., . . . Glass, N. E. (2015). Use of online safety decision aid by abused women: Effect on decisional conflict in a randomized controlled trial. *American Journal of Preventative Medicine*, 48(4), 372-383. doi:10.1016/j.amepre.2014.09.027

Emergency Nurses Association & International Association of Forensic Nurses. (2013).

Joint position statement on intimate partner violence. Author.

Espino, S. R., Fletcher, J., Gonzalez, M., Precht, A., Xavier, J., & Matoff-Stepp, S.

(2015). Violence screening and viral load suppression among HIV-positive women of color. *AIDS Patient Care and STDs*, 29 Suppl 1, S36-41.

doi:10.1089/apc.2014.0275

Feldhaus, K. M., Koziol-McLain, J., Amsbury, H. L., Norton, I. M., Lowenstein, S. R., &

Abbott, J. T. (1997). Accuracy of 3 brief screening questions for detecting partner violence in the emergency department. *Journal of the American Medical*

Association, 277(17), 1357-1361.

Flicker, S. M., Cerulli, C., Zhao, X., Tang, W., Watts, A., Xia, Y., & Talbot, N. L.

(2011). Concomitant forms of abuse and help-seeking behavior among white, African American, and Latina women who experience intimate partner violence.

Violence Against Women, 17(8), 1067-1085. doi:10.1177/1077801211414846

Ford-Gilboe, M., Varcoe, C., Noh, M., Wuest, J., Hammerton, J., Alhalal, E., & Burnett,

C. (2015). Patterns and predictors of service use among women who have separated from an abusive partner. *Journal of Family Violence*, 30(4), 419-431.

doi:10.1007/s10896-015-9688-8

Ghandour, R. M., Campbell, J. C., & Lloyd, J. (2015). Screening and counseling for

intimate partner violence: A vision for the future. *Journal of Women's Health*, 24(1), 57-61. doi:10.1089/jwh.2014.4885

Gielen, A., Burke, J., McDonnell, K., Illangasekare, S., & Mahoney, P. (2010). What

happens after IPV screening? Opportunities for health care provider intervention

- with survivors of intimate partner violence. *Annals of Behavioral Medicine*, 39, 174-174.
- Gillum, T. L. (2009). Improving services to African American survivors of IPV: From the voices of recipients of culturally specific services. *Violence Against Women*, 15(1), 57-80. doi:10.1177/1077801208328375
- Glass, N., Eden, K. B., Bloom, T., & Perrin, N. (2010). Computerized aid improves safety decision process for survivors of intimate partner violence. *Journal of Interpersonal Violence*, 25(11), 1947-1964. doi:10.1177/0886260509354508
- Gwadz, M., de Guzman, R., Freeman, R., Kutnick, A., Silverman, E., Leonard, N. R., . . . Honig, S. (2016). Exploring how substance use impedes engagement along the HIV care continuum: A qualitative study. *Front Public Health*, 4, 62. doi:10.3389/fpubh.2016.00062
- Halkitis, P. N., Moeller, R. W., Siconolfi, D. E., Storholm, E. D., Solomon, T. M., & Bub, K. L. (2013). Measurement model exploring a syndemic in emerging adult gay and bisexual men. *AIDS Behavior*, 17(2), 662-673. doi:10.1007/s10461-012-0273-3
- Hatcher, A. M., Smout, E. M., Turan, J. M., Christofides, N., & Stockl, H. (2015). Intimate partner violence and engagement in HIV care and treatment among women: A systematic review and meta-analysis. *AIDS*, 29(16), 2183-2194. doi:10.1097/QAD.0000000000000842
- Hussain, N., Sprague, S., Madden, K., Hussain, F. N., Pindiprolu, B., & Bhandari, M. (2015). A comparison of the types of screening tool administration methods used

- for the detection of intimate partner violence: A systematic review and meta-analysis. *Trauma Violence Abuse*, 16(1), 60-69. doi:10.1177/1524838013515759
- Illangasekare, S., Tello, M., Hutton, H., Moore, R., Anderson, J., Baron, J., & Chander, G. (2012). Clinical and mental health correlates and risk factors for intimate partner violence among HIV-positive women in an inner-city HIV clinic. *Women's Health Issues*, 22(6), e563-569. doi:10.1016/j.whi.2012.07.007
- Institute of Medicine. (2011). *Clinical preventive services for women: Closing the gaps*. Washington, DC: The National Academies Press.
- Jaffee, K. D., Epling, J. W., Grant, W., Ghandour, R. M., & Callendar, E. (2005). Physician-identified barriers to intimate partner violence screening. *Journal of Women's Health*, 14(8), 713-720. doi:10.1089/jwh.2005.14.713
- Jones, A., & Vetere, A. (2016). 'You just deal with it. You have to when you've got a child': A narrative analysis of mothers' accounts of how they coped, both during an abusive relationship and after leaving. *Clinical Child Psychology and Psychiatry*. doi:10.1177/1359104515624131
- Klevens, J., Sadowski, L., Kee, R., Trick, W., & Garcia, D. (2012). Comparison of screening and referral strategies for exposure to partner violence. *Women's Health Issues*, 22(1), e45-52. doi:10.1016/j.whi.2011.06.008
- Kuchinad, K. E., Hutton, H. E., Monroe, A. K., Anderson, G., Moore, R. D., & Chander, G. (2016). A qualitative study of barriers to and facilitators of optimal engagement in care among PLWH and substance use/misuse. *BMC Research Notes*, 9(1), 229. doi:10.1186/s13104-016-2032-4

- LeGrand, S., Reif, S., Sullivan, K., Murray, K., Barlow, M. L., & Whetten, K. (2015). A review of recent literature on trauma among individuals living with HIV. *Current HIV/AIDS Reports*, 12(4), 397-405. doi:10.1007/s11904-015-0288-2
- Machtinger, E. L., Cuca, Y. P., Khanna, N., Rose, C. D., & Kimberg, L. S. (2015). From treatment to healing: The promise of trauma-informed primary care. *Women's Health Issues*, 25(3), 193-197. doi:10.1016/j.whi.2015.03.008
- Machtinger, E. L., Wilson, T. C., Haberer, J. E., & Weiss, D. S. (2012). Psychological Trauma and PTSD in HIV-positive women: A meta-analysis. *AIDS and Behavior*. doi:10.1007/s10461-011-0127-4
- Maman, S., Campbell, J., Sweat, M. D., & Gielen, A. C. (2000). The intersections of HIV and violence: Directions for future research and interventions. *Social Science & Medicine* (1982), 50(4), 459-478.
- Marshall, L. L. (1992). Development of the severity of violence against women scales. *Journal of Family Violence*, 7(2), 103-121.
- McEwen, B. S., & Stellar, E. (1993). Stress and the individual. Mechanisms leading to disease. *Archives of Internal Medicine*, 153(18), 2093-2101.
- Mellins, C. A., Kang, E., Leu, C. S., Havens, J. F., & Chesney, M. A. (2003). Longitudinal study of mental health and psychosocial predictors of medical treatment adherence in mothers living with HIV disease. *AIDS Patient Care and STDs*, 17(8), 407-416. doi:10.1089/108729103322277420
- Morrison, L., Alcantara, A., Conover, K., Salerno, A., Cleek, A., Parker, P., . . . Ligenza, L. (2015). *Harnessing the learning community model to integrate trauma-informed care principles in service organizations*. New York: McSilver Institute

for Poverty Policy and Research, New York University Silver School of Social Work.

Moyer, V. A., & United States Preventive Service Task Force. (2013). Screening for intimate partner violence and abuse of elderly and vulnerable adults: U.S. preventive services task force recommendation statement. *Annals of Internal Medicine*, 158(6), 478-486. doi:10.7326/0003-4819-158-6-201303190-00588

Mustanski, B., Andrews, R., Herrick, A., Stall, R., & Schnarrs, P. W. (2014). A syndemic of psychosocial health disparities and associations with risk for attempting suicide among young sexual minority men. *American Journal of Public Health*, 104(2), 287-294. doi:10.2105/ajph.2013.301744

National Counsel for Health Statistics. (2016). *Health, United States 2015: With special feature on racial and ethnic health disparities*. Hyattsville, MD.

Nicholas, P. K., Willard, S., Thompson, C., Dawson-Rose, C., Corless, I. B., Wantland, D. J., . . . Moezzi, S. (2014). Engagement with care, substance use, and adherence to therapy in HIV/AIDS. *AIDS Research and Treatment*, 2014, 675739. doi:10.1155/2014/675739

Paterno, M. T., & Draughon, J. E. (2016). Screening for intimate partner violence. *Journal of Midwifery and Women's Health*. doi:10.1111/jmwh.12443

Patient Protection and Affordable Care Act (2010) 42 U.S.C. § 18001.

Paranjape, A., Tucker, A., McKenzie-Mack, L., Thompson, N., & Kaslow, N. (2007). Family violence and associated help-seeking behavior among older African American women. *Patient Education Counseling*, 68(2), 167-172. doi:10.1016/j.pec.2007.05.019

- Postmus, J. L. (2015). Women from different ethnic groups and their experiences with victimization and seeking help. *Violence Against Women*, 21(3), 376-393.
doi:10.1177/1077801214568254
- Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for reserach in the general population. *Applied Psychologicla Measurement*.
doi:10.1177/014662167700100306
- Rasool, S. (2016). Help-seeking after domestic violence: The critical role of children. *Journal of Interpersonal Violence*, 31(9), 1661-1686.
doi:10.1177/0886260515569057
- Reeves, E. (2015). A synthesis of the literature on trauma-informed care. *Issues in Mental Health Nursing*, 36(9), 698-709. doi:10.3109/01612840.2015.1025319
- Rhodes, K. V., Drum, M., Anliker, E., Frankel, R. M., Howes, D. S., & Levinson, W. (2006). Lowering the threshold for discussions of domestic violence: A randomized controlled trial of computer screening. *Archives of Internal Medicine*, 166(10), 1107-1114.
- Rose, D., Trevillion, K., Woodall, A., Morgan, C., Feder, G., & Howard, L. (2011). Barriers and facilitators of disclosures of domestic violence by mental health service users: Qualitative study. *British Journal of Psychiatry*, 198(3), 189-194.
doi:10.1192/bjp.bp.109.072389
- Rose, R. C., House, A. S., & Stepleman, L. M. (2010). Intimate partner violence and its effects on the health of African American HIV-positive women. *Psychological Trauma: Theory, Research, Practice, and Policy*, 2(4), 311-317.

- Ruggiero, K. J., Del Ben, K., Scotti, J. R., & Rabalais, A. E. (2003). Psychometric properties of the PTSD checklist-civilian version. *Journal of Traumatic Stress, 16*(5), 495-502. doi:10.1023/A:1025714729117
- Sarnyai, Z., Berger, M., & Javan, I. (2016). Allostatic load mediates the impact of stress and trauma on physical and mental health in Indigenous Australians. *Australas Psychiatry, 24*(1), 72-75. doi:10.1177/1039856215620025
- Schafer, K. R., Brant, J., Gupta, S., Thorpe, J., Winstead-Derlega, C., Pinkerton, R., . . . Dillingham, R. (2012). Intimate partner violence: A predictor of worse HIV outcomes and engagement in care. *AIDS Patient Care and STDs, 26*(6), 356-365. doi:10.1089/apc.2011.0409
- Searle, A. K., Van Hooff, M., McFarlane, A. C., Davies, C. E., Fairweather-Schmidt, A. K., Hodson, S. E., . . . Steele, N. (2015). The validity of military screening for mental health problems: diagnostic accuracy of the PCL, K10 and AUDIT scales in an entire military population. *International Journal of Methods in Psychiatric Research, 24*(1), 32-45. doi:10.1002/mpr.1460
- Siemieniuk, R. A., Krentz, H. B., Miller, P., Woodman, K., Ko, K., & Gill, M. J. (2013). The clinical implications of high rates of intimate partner violence against HIV-positive women. *Journal of Acquired Immune Deficiency Syndrome, 64*(1), 32-38. doi:10.1097/QAI.0b013e31829bb007
- Siyahhan Julnes, P., Auh, S., Krakora, R., Withers, K., Nora, D., Matthews, L., . . . Kapetanovic, S. (2016). The association between post-traumatic stress disorder and markers of inflammation and immune activation in HIV-infected individuals with controlled viremia. *Psychosomatics*. doi:10.1016/j.psych.2016.02.015

Substance Abuse and Mental Health Service Administration (SAMHSA), (2015).

Trauma-informed approach and trauma-specific interventions. Washington, DC: Author.

Sullivan, K. A., Messer, L. C., & Quinlivan, E. B. (2015). Substance abuse, violence, and HIV/AIDS (SAVA) syndemic effects on viral suppression among HIV positive women of color. *AIDS Patient Care and STDs*, 29 Suppl 1, S42-48.
doi:10.1089/apc.2014.0278

Sutherland, M. A., Fontenot, H. B., & Fantasia, H. C. (2014). Beyond assessment: Examining providers' responses to disclosures of violence. *Journal of the American Association of Nurse Practitioners*, 26(10), 567-573. doi:10.1002/2327-6924.12101

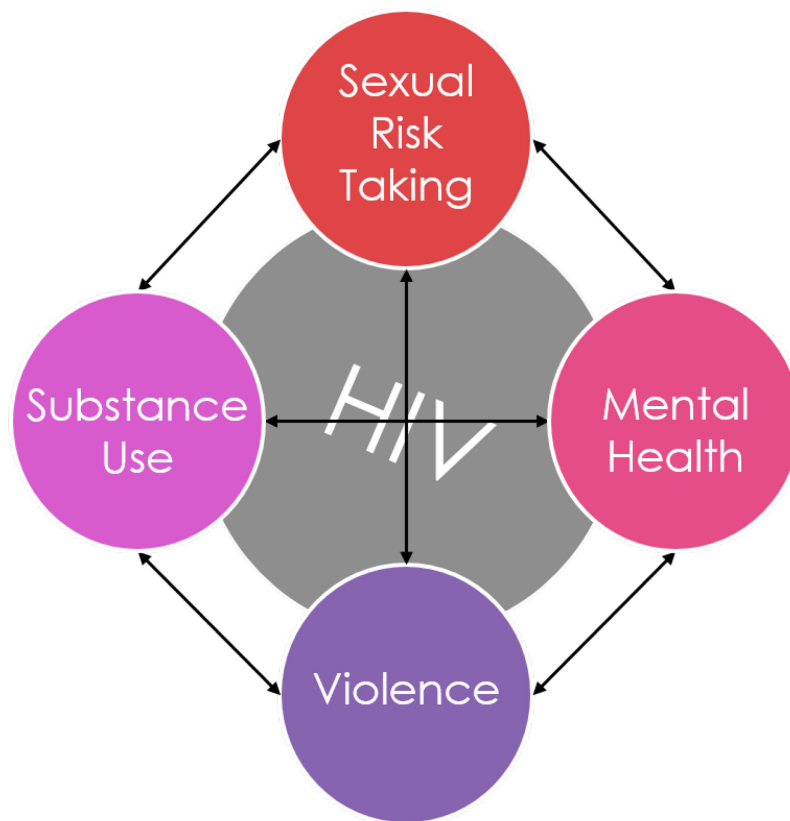
Sylaska, K. M., & Edwards, K. M. (2014). Disclosure of intimate partner violence to informal social support network members: A review of the literature. *Trauma Violence Abuse*, 15(1), 3-21. doi:10.1177/1524838013496335

Tillman, S., Bryant-Davis, T., Smith, K., & Marks, A. (2010). Shattering silence: Exploring barriers to disclosure for African American sexual assault survivors. *Trauma Violence Abuse*, 11(2), 59-70. doi:10.1177/1524838010363717

Trautman, D. E., McCarthy, M. L., Miller, N., Campbell, J. C., & Kelen, G. D. (2007). Intimate partner violence and emergency department screening: Computerized screening versus usual care. *Annals of Emergency Medicine*, 49(4), 526-534.
doi:10.1016/j.annemergmed.2006.11.022

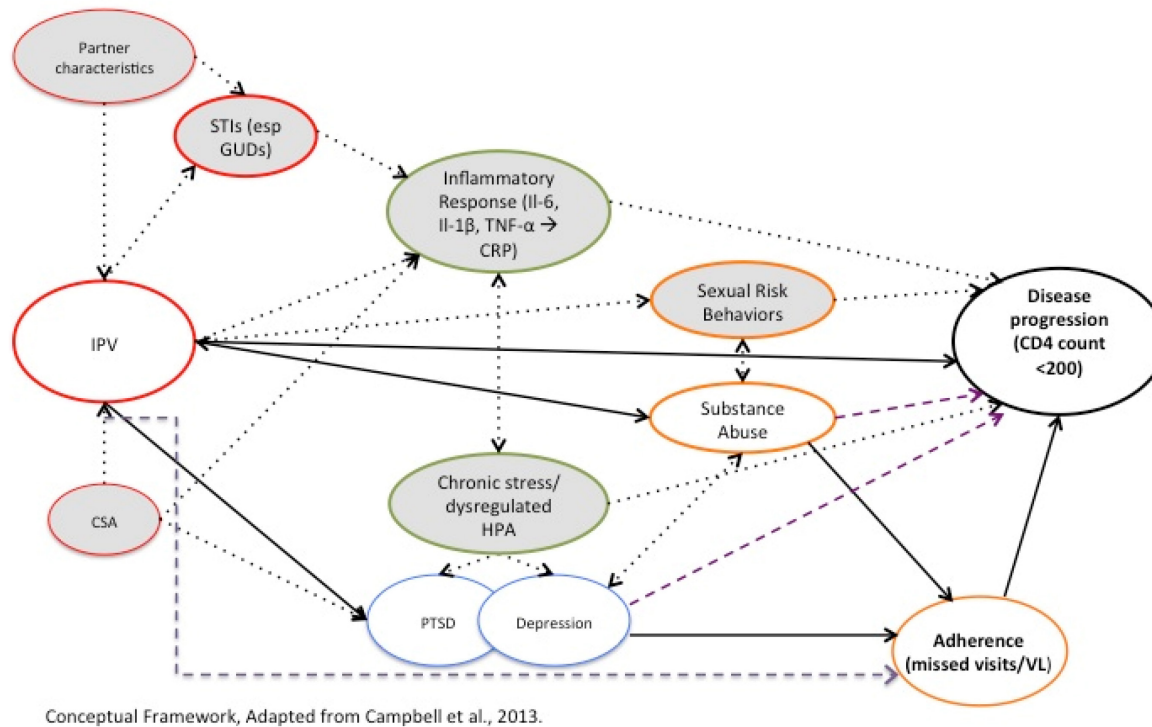
- Tsai, A. C., & Venkataramani, A. S. (2016). Syndemics and health disparities: A methodological note. *AIDS and Behavior*, 20(2), 423-430. doi:10.1007/s10461-015-1260-2
- Vagenas, P., Azar, M. M., Copenhaver, M. M., Springer, S. A., Molina, P. E., & Altice, F. L. (2015). The impact of alcohol use and related disorders on the HIV continuum of care: A systematic review. *Current HIV/AIDS Reports*, 12(4), 421-436. doi:10.1007/s11904-015-0285-5
- White House Office on National AIDS Policy. (2015). *The national HIV/AIDS strategy: Updated to 2020*. Washington, DC: The White House.
- Wilson, H. W., & Widom, C. S. (2011). Pathways from childhood abuse and neglect to HIV-risk sexual behavior in middle adulthood. *Journal of Consulting and Clinical Psychology*, 79(2), 236-246. doi:10.1037/a0022915
- Wuest, J., Ford-Gilboe, M., Merritt-Gray, M., Varcoe, C., Lent, B., Wilk, P., & Campbell, J. (2009). Abuse-related injury and symptoms of posttraumatic stress disorder as mechanisms of chronic pain in survivors of intimate partner violence. *Pain Medicine*, 10(4), 739-747. doi:10.1111/j.1526-4637.2009.00624.x
- Wuest, J., Ford-Gilboe, M., Merritt-Gray, M., Wilk, P., Campbell, J. C., Lent, B., . . . Smye, V. (2010). Pathways of chronic pain in survivors of intimate partner violence. *Journal of Women's Health*, 19(9), 1665-1674. doi:10.1089/jwh.2009.1856
- Zink, T., Elder, N., & Jacobson, J. (2003). How children affect the mother/victim's process in intimate partner violence. *Archives in Pediatric and Adolescent Medicine*, 157(6), 587-592. doi:10.1001/archpedi.157.6.587

Figure 5.1. Conceptual framework of SAVA syndemic factors.



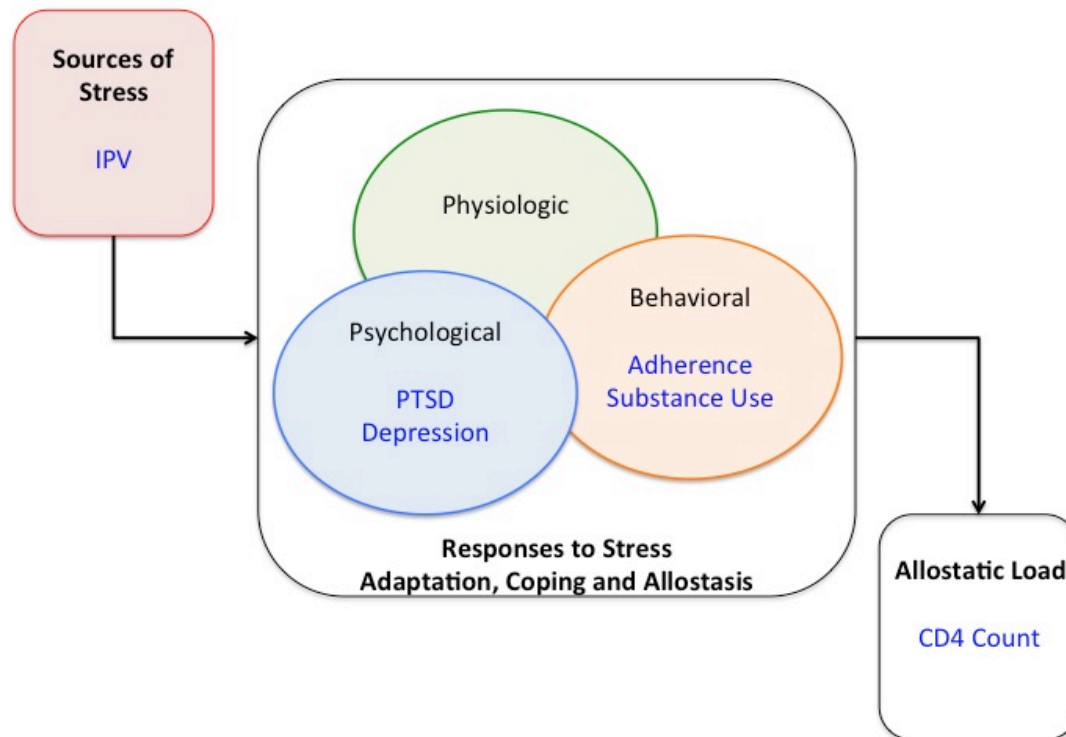
Note: Used with permission of the author (Draughon, 2015).

Figure 5.2. Conceptual framework of the impact of IPV on HIV disease progression.



Note: Conceptual framework, adapted from Campbell, Lucea, Stockman, & Draughon (2013). Solid lines indicate statistically significant relationships noted in the current study. Shaded circles and dotted lines were not measured or tested in the current study. Dashed lines indicate relationships tested but not found to be significant in this study.

Figure 5.3. Conceptual framework combining allostatic load and study concepts.



APPENDIX A: POWER ANALYSIS

An initial power analysis for Aims 1 and 2 was conducted during study design based on available data from the clinic and the literature using PASS Version 14 (NCSS, 2015).

Aim 1: Past year prevalence of IPV among the women receiving care in the Moore Clinic has previously been estimated at 25%, using this estimate and given a population of approximately 1,500 women receiving care at the clinic, sample size was calculated for various precision levels (Illangasekare et al., 2012). Table A.1 shows the sample sizes necessary to examine the true proportion with $\alpha = 0.05$ and varying precision.

Aim 2: Detectable odds ratios (ORs) were calculated assuming 73% of female patients with suppressed viral loads (<200 copies/ml) and 88% with CD4 counts greater than 200 supplied by the Moore Clinic as of May 2012 (personal communication, Richard Moore). Sample sizes were calculated assuming $\alpha = 0.05$ and power of 0.8 and an IPV rate of 25%. Table A.2 shows the necessary sample size to detect associated ORs for the two primary study outcomes, CD4 count <200 and detectable viral load.

Based on the results of the two sets of sample size calculations, an initial sample size of 350 was chosen to allow for the detections of a moderate to large difference in odds for both outcomes and estimate prevalence within +/- four to five percent. At the time of the original power calculation, only one study could be found for use in estimating effect size for the relationship between IPV and CD4 count (Schafer et al., 2012). They found that IPV resulted in a risk ratio of 3.97 for having a CD4 count <200 and a risk ratio of 1.92 for having a detectable viral load.

After reviewing safety and prevalence data from the first 169 participants with completed survey and medical records data, past year prevalence was noted to be 57%, and a significant bivariate association between IPV and CD4 count was noted (X^2 : 4.304, $p=0.038$). At this point, power was re-calculated using an IPV prevalence of 50% (see Tables A.1 and A.2), and the decision was made to stop recruitment after 260 women had been accrued.

References

- Illangasekare, S., Tello, M., Hutton, H., Moore, R., Anderson, J., Baron, J., & Chander, G. (2012). Clinical and mental health correlates and risk factors for intimate partner violence among HIV-positive women in an inner-city HIV clinic. *Women's Health Issues, 22*(6), e563-569. doi:10.1016/j.whi.2012.07.007
- NCSS, LLC. (2015). PASS 14 Power Analysis and Sample Size Software. Kaysville, UT, USA: NCSS, LLC. Retrieved from ncss.com/software/pass
- Schafer, K. R., Brant, J., Gupta, S., Thorpe, J., Winstead-Derlega, C., Pinkerton, R., . . . Dillingham, R. (2012). Intimate partner violence: A predictor of worse HIV outcomes and engagement in care. *AIDS Patient Care and STDs, 26*(6), 356-365. doi:10.1089/apc.2011.0409

Table A.1

Sample Size Needed to Estimate IPV Prevalence with Varying Precision

IPV Prevalence 25%			IPV Prevalence 50%	
Precision	95% CI	n	95% CI	n
0.06	0.19—0.31	215	0.44—0.56	260
0.05	0.20—0.30	306	0.45—0.55	370
0.04	0.21—0.29	473	0.46—0.54	567

Table A.2

Sample Size Needed to Detect Specified ORs for Primary Outcome Variables, power=0.80, $\alpha=0.05$

OR	IPV Prevalence 25%		IPV Prevalence 50%	
	CD4 Count (n)	Viral Load (n)	CD4 Count (n)	Viral Load (n)
2.0	1158	555	293	489
2.5	-	-	163	262
3.0	571	260	112	174
3.5	-	-	85	128
4.0	419	185	-	-
5.0	351	152	-	-

APPENDIX B: ADDITIONAL DATA ANALYSIS TABLES

Table B.1

Chi-square Analysis of Patient Characteristics by CD4 Count Measurement, n (%)

	Overall n=239	CD4 <200 n= 25	CD4>200 n=214	p
ART Prescribed in Past Year				
Yes	223 (93)	24 (96)	199 (93)	0.569
No	16 (7)	1 (4)	15 (7)	
AUDIT >7*				
Yes	45 (19)	7 (28)	38 (18)	0.224
No	192 (81)	18 (72)	174 (82)	
CES-D >15*				
Yes	64 (27)	8 (32)	56 (26)	0.552
No	173 (73)	17 (68)	156 (74)	
Children Under 18				
Yes	49 (21)	8 (32)	41 (20)	0.132
No	190 (80)	17 (68)	173 (81)	
DA Score >14 [n=124] ^a				
Yes	30 (24)	4 (21)	26 (25)	0.728
No	94 (76)	15 (79)	79 (75)	
DAST-10 >2*				
Yes	104 (44)	12 (48)	92 (43)	0.661
No	133 (56)	13 (52)	120 (57)	
Ethnicity*				
Hispanic	3 (1)	0 (0)	3 (2)	0.542
Not Hispanic	226 (99)	25 (100)	201 (99)	
Employment Status				
Employed	30 (13)	5 (20)	25 (12)	0.235
Unemployed	209 (87)	20 (80)	189 (88)	
Graduated from High School				
Yes	137 (58)	15 (63)	122 (58)	0.641
No	99 (42)	9 (38)	90 (43)	
Insurance				
Public	231 (97)	24 (96)	207 (97)	0.848
Private	8 (3)	1 (4)	7 (3)	

	Overall <i>n</i> =239	CD4 <200 <i>n</i> = 25	CD4>200 <i>n</i> =214	<i>p</i>
Lived with partner in past year				
Yes	124 (52)	12 (48)	112 (52)	0.681
No	115 (48)	13 (52)	102 (48)	
Partner Gender				
Male	226 (95)	25 (100)	201 (94)	0.448
Female	12 (5)	0 (0)	12 (6)	
Transgender Female	1 (0.4)	0 (0)	1 (0.5)	
Past Year Drug Use				
Yes	120 (50)	17 (68)	103 (48)	0.060
No	119 (50)	8 (32)	111 (52)	
Past Year IPV				
Yes	122 (51)	18 (72)	104 (49)	0.027
No	117 (49)	7 (28)	110 (51)	
PCL-C >44*				
Yes	56 (24)	7 (28)	49 (23)	0.586
No	181 (76)	18 (72)	163 (77)	
Race				
Black/African American	207 (87)	21 (84)	186 (87)	0.807
White Caucasian	9 (4)	2 (8)	7 (3)	
Mixed/Other	10 (4)	1 (4)	9 (4)	
Native American	2 (1)	0 (0)	2 (1)	
Did not answer	11 (5)	1 (4)	10 (5)	
Relationship Status with most recent partner				
Married	95 (40)	6 (24)	89 (42)	0.049
Dating	48 (20)	3 (12)	45 (21)	
Common Law	52 (22)	7 (28)	45 (21)	
Other	44 (18)	9 (36)	35 (16)	
Suicide risk criteria met*				
Yes	17 (7)	2 (8)	15 (7)	0.865
No	220 (93)	23 (92)	197 (93)	

Notes: P-values in bold were statistically significant; ART: antiretroviral therapy; AUDIT: Alcohol Use Disorders Identification Tool; CES-D: Center for Epidemiologic Studies–Depression scale; DA: Danger Assessment; DAST-10: Drug Abuse Screening Tool; IPV: intimate partner violence; PCL-C: Posttraumatic Checklist- Civilian

*= missing data, ^aDA from women reporting past year IPV only

Table B.2

Chi-square Analysis of Patient Characteristics by Viral Load Measurement, n (%)

	Overall n=239	Viral Load Detectable n= 72	Viral Loan Not Detectable n=167	p
ART Prescribed in Past Year				
Yes	223 (93)	60 (83)	163 (98)	<0.001
No	16 (7)	12 (17)	4 (2)	
AUDIT >7*				
Yes	45 (19)	18 (25)	27 (16)	0.102
No	192 (81)	53 (75)	139 (84)	
CES-D >15*				
Yes	64 (27)	22 (31)	42 (25)	0.367
No	173 (73)	49 (69)	124 (75)	
Children Under 18				
Yes	49 (21)	20 (28)	29 (17)	0.067
No	190 (80)	52 (72)	138 (83)	
DA Score >14 [n=124] ^a				
Yes	30 (24)	11 (24)	19 (24)	0.955
No	94 (76)	35 (76)	59 (76)	
DAST-10 >2*				
Yes	104 (44)	34 (48)	70 (42)	0.416
No	133 (56)	37 (52)	96 (58)	
Ethnicity*				
Hispanic	3 (1)	3 (5)	0 (0)	0.007
Not Hispanic	226 (99)	64 (96)	162 (100)	
Employment Status				
Employed	30 (13)	6 (8)	24 (14)	0.196
Unemployed	209 (87)	66 (92)	143 (86)	
Graduated from High School*				
Yes	137 (58)	31 (44)	106 (64)	0.003
No	99 (42)	40 (56)	59 (36)	
Insurance				
Public	231 (97)	69 (96)	162 (97)	0.644
Private	8 (3)	3 (4)	5 (3)	

	Overall <i>n</i> =239	Viral Load Detectable <i>n</i> = 72	Viral Load Not Detectable <i>n</i> =167	<i>p</i>
Lived with partner in past year				
Yes	124 (52)	33 (46)	91 (54)	0.219
No	115 (48)	39 (54)	76 (46)	
Partner Gender				
Male	226 (95)	68 (94)	158 (95)	0.291
Female	12 (5)	3 (4)	9 (5)	
Transgender Female	1 (0.4)	1 (1)	0 (0)	
Past Year Drug Use				
Yes	120 (50)	45 (63)	75 (45)	0.013
No	119 (50)	27 (38)	92 (55)	
Past Year IPV				
Yes	122 (51)	45 (63)	77 (46)	0.020
No	117 (49)	27 (38)	90 (54)	
PCL-C >44*				
Yes	56 (24)	21 (30)	35 (21)	0.159
No	181 (76)	50 (70)	131 (79)	
Race				
Black/African American	207 (87)	58 (81)	149 (89)	0.039
White Caucasian	9 (4)	1 (1)	8 (5)	
Mixed/Other	10 (4)	5 (7)	5 (3)	
Native American	2 (1)	1 (1)	1 (1)	
Did not answer	11 (5)	7 (10)	4 (2)	
Relationship Status with most recent partner				
Married	95 (40)	38 (53)	57 (34)	0.061
Dating	48 (20)	12 (17)	36 (22)	
Common Law	52 (22)	12 (17)	40 (24)	
Other	44 (18)	10 (14)	34 (20)	
Suicide risk criteria met*				
Yes	17 (7)	5 (7)	12 (7)	0.959
No	220 (93)	66 (93)	154 (93)	

Notes: P-values in bold were statistically significant; ART: antiretroviral therapy; AUDIT: Alcohol Use Disorders Identification Tool; CES-D: Center for Epidemiologic Studies – Depression scale; DA: Danger Assessment; DAST-10: Drug Abuse Screening Tool; IPV: intimate partner violence; PCL-C: Posttraumatic Checklist- Civilian

*= missing data, ^aDA from women reporting past year IPV only

Table B.3

*Chi-square Analysis of Patient Characteristics by Missed Clinic Visit Proportion >25%,
n (%)*

	Overall (n=239)	Missed >25% of visits (n= 138)	Missed ≤25% of visits (n=101)	<i>p</i>
ART Prescribed in Past Year				
Yes	223 (93)	128 (93)	95 (94)	0.690
No	16 (7)	10 (7)	6 (6)	
AUDIT >7*				
Yes	45 (19)	30 (22)	15 (15)	0.162
No	192 (81)	106 (78)	86 (85)	
CES-D >15*				
Yes	64 (27)	46 (34)	18 (18)	0.006
No	173 (73)	90 (66)	83 (82)	
Children Under 18				
Yes	49 (21)	23 (17)	26 (26)	0.086
No	190 (80)	115 (83)	75 (74)	
DA Score >14 [n=124]^a				
Yes	30 (24)	18 (23)	12 (27)	0.627
No	94 (76)	61 (77)	33 (73)	
DAST-10 >2*				
Yes	104 (44)	67 (49)	37 (37)	0.053
No	133 (56)	69 (51)	64 (63)	
Ethnicity*				
Hispanic	3 (1)	2 (2)	1 (1)	0.785
Not Hispanic	226 (99)	133 (99)	93 (99)	
Employment Status				
Employed	30 (13)	11 (8)	19 (19)	0.012
Unemployed	209 (87)	127 (92)	82 (81)	
Graduated from High School*				
Yes	137 (58)	76 (56)	61 (62)	0.345
No	99 (42)	61 (45)	38 (38)	
Insurance				
Public	231 (97)	136 (99)	95 (94)	0.057
Private	8 (3)	2 (1)	6 (6)	

	Overall (n=239)	Missed >25% of visits (n= 138)	Missed ≤25% of visits (n=101)	<i>p</i>
Lived with partner in past year				
Yes	124 (52)	77 (56)	54 (54)	0.157
No	115 (48)	61 (44)	47 (47)	
Partner Gender				
Male	226 (95)	133 (96)	93 (92)	0.253
Female	12 (5)	5 (4)	7 (7)	
Transgender Female	1 (0.4)	0 (0)	1 (1)	
Past Year Drug Use				
Yes	120 (50)	83 (60)	37 (37)	<0.001
No	119 (50)	55 (40)	64 (64)	
Past Year IPV				
Yes	122 (51)	77 (56)	45 (45)	0.086
No	117 (49)	61 (44)	56 (55)	
PCL-C >44*				
Yes	56 (24)	37 (27)	19 (19)	0.132
No	181 (76)	99 (73)	82 (81)	
Race				
Black/African American	207 (87)	117 (85)	90 (90)	0.161
White Caucasian	9 (4)	4 (3)	5 (5)	
Mixed/Other	10 (4)	9 (7)	1 (1)	
Native American	2 (1)	2 (1)	0 (0)	
Did not answer	11 (5)	6 (4)	5 (5)	
Relationship Status with most recent partner				
Married	95 (40)	53 (38)	42 (42)	0.676
Dating	48 (20)	29 (21)	19 (19)	
Common Law	52 (22)	33 (24)	19 (19)	
Other	44 (18)	23 (17)	21 (21)	
Suicide Risk Criteria*				
Yes	17 (7)	11 (8)	6 (6)	0.526
No	220 (93)	125 (92)	95 (94)	

Notes: P-values in bold were statistically significant; ART: antiretroviral therapy; AUDIT: Alcohol Use Disorders Identification Tool; CES-D: Center for Epidemiologic Studies – Depression scale; DA: Danger Assessment; DAST-10: Drug Abuse Screening Tool; IPV: intimate partner violence; PCL-C: Posttraumatic Checklist- Civilian

*= missing data, ^aDA from women reporting past year IPV only

Table B.4

Participants Reporting Past Year Substance Abuse, Depression or PTSD Symptomology by type of intimate partner violence experienced, n (%)

	CES-D >15	PCL-C >44	Past year drug use ^a	AUDIT >7
Psychological abuse only (n=7)	3 (43)	1 (14)	2 (29)	1 (14)
Physical abuse only (n=2)	1 (50)	2 (100)	2 (100)	1 (50)
Psychological and physical abuse (n=62)	16 (26)	18 (29)	34 (55)	12 (20)
Psychological and sexual abuse (n=5)	3 (60)	1 (20)	3 (60)	0 (0)
Physical and sexual abuse (n=1)	1 (100)	0 (0)	1 (100)	0 (0)
Psychological, physical and sexual abuse (n=45)	22 (49)	21 (47)	27 (60)	18 (40)

Note: AUDIT: Alcohol Use Disorders Identification Tool; CES-D: Center for Epidemiologic Studies–Depression scale; PCL-C: Posttraumatic Checklist–Civilian

^a Participant reported or provider documented past year illicit drug use.

Table B.5

Qualitative Themes and Sub-themes Endorsed by Participants

		HIV Control Group								
		Detectable VL/CD4 Count <200				Not Detectable VL/CD4 Count ≥200				
Participant #		475	536	593	676	653	743	745*	746	823
Age/Race		28/M	43/B	57/B	35/W	46/B	25/B	50/B	51/B	25/B
Qualitative Themes/Sub-themes										
<i>(Re)Establishing Identity and Choosing Labels</i>		✓	✓	✓	✓	✓	✓	✓	✓	✓
1.	Being a mom or caregiver	✓	✓	✓	✓	✓				✓
2.	Minimizing violence	✓		✓	✓	✓		✓	✓	✓
3.	Normalizing versus stigma	✓		✓	✓					✓
<i>“I know what I’m suppose to do”</i>		✓	✓	✓	✓	✓	✓	✓	✓	✓
1.	Accepting responsibility for care	✓		✓	✓	✓		✓	✓	✓
2.	Barriers to overcome	✓		✓	✓	✓	✓	✓	✓	✓

Note: W: white; B: black; M: multiple

*Participant not prescribed antiretroviral therapy has a detectable viral load and CD4 count >200 classified as “good control” based on adherence to current treatment plan

APPENDIX C: STUDY INSTRUMENTS

Phase 1: Survey Measures

Section: Demographic Info

Narrative: Thank you for deciding to participate in this research study. First we'd like to collect a little bit more information about you.

1.a First Name

1.b Last Name

2. Date of birth: (mm/dd/yyyy) _____

3. What is the highest level of school that you have completed?

a. 8th grade or less

b. Some high school, but did not graduate or GED

c. High school diploma or GED

d. Some college

e. Associate's degree or vocational graduate

f. 4 year college degree/Bachelor's degree

g. Post-Baccalaureate/Masters degree/Ph.D.

4. How do you identify yourself in terms of race? (select all that apply)

a. American Indian or Alaska Native

b. Asian

c. Black or African American

d. Native Hawaiian or Pacific Islander

e. White/Caucasian

f. Mixed/Other Race

5. How do you identify yourself in terms of ethnic origin?

a. Hispanic, Latino or Spanish Origin

b. Not Hispanic, Latino or Spanish Origin

6. Do you currently have a paid job?

a. Yes

b. No

7. Do you currently have health insurance?

a. Yes

b. No

7.1 If Yes, What type of insurance?

a. Private (Kaiser, BlueCross)

b. Public (Medicare, Medicaid, SSI)

8. Do you have any children under 18 that you are responsible for?

a. Yes

b. No

8.1 If yes, how many?

a. 1

b. 2

c. 3

d. 4

e. 5 or more

9. Are you currently in a relationship (dating, married, hooking up, living together, etc)?

a. Yes

b. No

If yes to 9:

9.1. How would you describe your relationship with this person?

a. Dating

b. Married

e. Common Law

f. Other _____ (specify)

9.2. Do you currently live in the same household with this person?

a. Yes

b. No

9.3. When was the first time you and your current partner started dating or became a couple (mm/dd/yyyy)? ____/____

9.4. Is your partner:

a. Male

b. Female

c. Transgender male

d. Transgender female

If no to 9:

9.1.1. During the past year, how would you have described your most recent relationship?

a. Dating

b. Married

e. Common Law

f. Other _____ (specify)

9.2.1. In the past year did you live in the same household with your most recent relationship partner?

a. Yes

b. No

9.3.1. When was the first time you and your former partner started dating became a couple (mm/dd/yyyy)? ____/____

9.4.2 Your most recent relationship partner was:

a. Male

b. Female

c. Transgender male

d. Transgender female

Section: Abuse Assessment Screen

Narrative: In the next several sections you will be asked a series of questions about the different types of violence and threats of violence that women sometimes report experiencing in relationships. You may not have experienced these kinds of violence but many women have.

1. In the past year, have you been emotionally or physically abused by your partner or someone important to you?

a. Yes

b. No

1.1 If yes, by whom? (Select all that apply)

- a. Husband
- b. Wife
- c. Ex-husband
- d. Ex-Wife
- e. Boyfriend
- f. Girlfriend
- g. Ex-Boyfriend
- h. Ex-Girlfriend
- i. Other (specify)

2. In the past year, have you been hit, slapped, kicked or otherwise physically hurt someone?

- a. Yes
- b. No

2.1 If yes, by whom? (Select all that apply)

- i. Husband
- ii. Wife
- iii. Ex-husband
- iv. Ex-Wife
- v. Boyfriend
- vi. Girlfriend
- vii. Ex-Boyfriend
- viii. Ex-Girlfriend
- ix. Other (specify)

3. In the past year, have you been forced to have sexual activities by someone?

a. Yes

b. No

3.1 If yes, by whom? (Select all that apply)

a. Husband

b. Wife

c. Ex-husband

d. Ex-Wife

e. Boyfriend

f. Girlfriend

g. Ex-Boyfriend

h. Ex-Girlfriend

i. Other (specify)

4. Are you afraid of your partner or someone listed above?

a. Yes

b. No

4.1 If yes, by whom? (Select all that apply)

a. Husband

b. Wife

c. Ex-husband

d. Ex-Wife

e. Boyfriend

f. Girlfriend

- g. Ex-Boyfriend
- h. Ex-Girlfriend
- i. Other (specify)

Section: Severity of Violence Against Women Scale (SVAWS)

Narrative: Next is a list of behaviors your partner may have done. Describe how often in the past **year** your partner or ex-partner has done each behavior by choosing a number from the following scale.

0	1	2	3
Never	Once	A few times	Many times

How often (**in the past year**) has your partner:

- _____ 1. Hit or kicked a wall, door, or furniture?
- _____ 2. Threw, smashed or broke an object?
- _____ 3. Drove dangerously with you in the car?
- _____ 4. Thrown an object at you?
- _____ 5. Shook a finger at you?
- _____ 6. Made threatening faces or gestures at you?
- _____ 7. Shook a fist at you?
- _____ 8. Acted like a bully towards you?
- _____ 9. Destroyed something belonging to you?
- _____ 10. Threatened to harm or damage things you care about?
- _____ 11. Threatened to destroy property?
- _____ 12. Threatened someone you care about?

- _____ 13. Threatened to hurt you?
- _____ 14. Threatened to kill himself/herself?
- _____ 15. Threatened to kill you?
- _____ 17. Threatened you with a weapon?
- _____ 16. Threatened you with a club-like object?
- _____ 16. Threatened you with a knife or gun?
- _____ 19. Acted like he/she wanted to kill you?
- _____ 20. Held you down, pinning you in place?
- _____ 21. Pushed or shoved you?
- _____ 22. Shook or roughly handled you?
- _____ 23. Grabbed you suddenly and forcefully?
- _____ 24. Scratched you?
- _____ 25. Pulled your hair?
- _____ 26. Twisted your arm?
- _____ 27. Spanked you?
- _____ 28. Bit you?
- _____ 29. Slapped you with the palm of his/her hand?
- _____ 30. Slapped you with the back of his/her hand?
- _____ 31. Slapped you around your face or head?
- _____ 33. Hit you with an object?
- _____ 36. Punched you?
- _____ 32. Kicked you?
- _____ 34. Stomped on you?

- _____ 35. Choked you?
- _____ 37. Burned you with something?
- _____ 38. Used a club-like object on you?
- _____ 39. Beat you up?
- _____ 40. Used a knife or gun on you?
- _____ 41. Demanded sex whether you wanted to or not?
- _____ 42. Made you have oral sex against your will?
- _____ 43. Made you have sexual intercourse against your will?
- _____ 44. Physically forced you to have sex?
- _____ 45. Made you have anal sex against your will?
- _____ 46. Used an object on you in a sexual way?

Section: Reproductive Coercion

[For women reporting male partners]

Narrative: The next set of questions asks about your choices regarding your decision and your partner's involvement in your decision to have or not have children.

1. In the past year, has someone you were dating or going out with told you not to use any birth control (such as pills, shot, ring, etc.)?
 - a. Yes
 - b. No
2. In the past year, has someone you were dating or going out with said he would leave you if you did not get pregnant?
 - a. Yes
 - b. No

3. In the past year, has someone you were dating or going out with told you he would have a baby with someone else if you did not get pregnant?
 - a. Yes
 - b. No
4. In the past year, has someone you were dating or going out with hurt you physically because you did not agree to get pregnant?
 - a. Yes
 - b. No
5. In the past year, has someone you were dating or going out with taken off the condom while you were having sex so that you would get pregnant?
 - a. Yes
 - b. No
6. In the past year, has someone you were dating or going out with put holes in the condom so you would get pregnant?
 - a. Yes
 - b. No
7. In the past year, has someone you were dating or going out with broken a condom on purpose while you were having sex so you would get pregnant?
 - a. Yes
 - b. No
8. In the past year, has someone you were dating or going out with taken your birth control (such as pills) away from you or kept you from going to the clinic to get birth control so that you would get pregnant?

- a. Yes
- b. No

9. In the past year, has someone you were dating or going out with made you have sex without a condom so you would get pregnant?

- a. Yes
- b. No

Section: Danger Assessment

[For those indicating IPV on AAS or SVAWS]

For women who report a male partner

Narrative: Several risk factors have been associated with increased risk of re-assault of women in abusive relationships. We cannot predict what will happen in your case, but we would like you to be aware of the danger of repeat abuse and for you to see how many of the risk factors apply to your situation.

1. Has the physical violence increased in severity or frequency over the past year?

- a. Yes
- b. No

2. Does he own a gun?

- a. Yes
- b. No

3. Have you ever left him after living together ?

- a. Yes
- b. No
- c. We have never lived together

4. Is he unemployed?

a. Yes

b. No

5. Has he ever used a weapon against you or threatened you with a lethal weapon?

a. Yes

b. No

6. Does he threaten to kill you?

a. Yes

b. No

7. Has he avoided being arrested for domestic violence? (*for example, leaving the scene before the police can arrive*).

a. Yes

b. No

8. Do you have a child that is not his?

a. Yes

b. No

9. Has he ever forced you to have sex when you did not wish to do so?

a. Yes

b. No

10. Does he ever try to choke you?

a. Yes

b. No

11. Does he use illegal drugs? By drugs, I mean “uppers or amphetamines, speed, angel

dust, cocaine, crack, street drugs or mixtures?

- a. Yes
- b. No

12. Is he an alcoholic or problem drinker?

- a. Yes
- b. No

13. Does he control most or all of your daily activities? For instance: does he tell you who you can be friends with, when you can see your family, how much money you can use, or when you can take the car?

- a. Yes
- b. No

14. Is he violently and constantly jealous of you? (For instance, does he say “if I can’t have you, no one can”)?

- a. Yes
- b. No

15. Have you ever been beaten by him while you were pregnant?

- a. Yes
- b. No

15a Have you ever been pregnant by him?

- a. Yes
- b. No

16. Has he ever threatened or tried to commit suicide?

- a. Yes

b. No

17. Does he threaten to harm your children?

a. Yes

b. No

18. Do you believe he is capable of killing you?

a. Yes

b. No

19. Does he follow or spy on you, leave threatening notes or messages on answering machine, destroy your property, or call you when you don't want him to?

a. Yes

b. No

20. Have you ever threatened or tried to commit suicide?

a. Yes

b. No

For women who report a female partner

Narrative: Several risk factors have been associated with increased risk of re-assault of women in abusive same-sex relationships. We cannot predict what will happen in your case, but we would like you to be aware of the danger of repeat abuse and for you to see how many of the risk factors apply to your situation.

1. Is she constantly jealous and/or possessive of you?

a. Yes

b. No

2. Does she try to isolate you socially?

- a. Yes
 - b. No
3. Has the physical violence increased in severity or frequency over the past year?
- a. Yes
 - b. No
4. Has she threatened you with a gun over the past year?
- a. Yes
 - b. No
5. Have you lived with her in the past year?
- a. Yes
 - b. No
6. Has she ever abused or threatened to abuse a previous intimate partner, or their family members or friends?
- a. Yes
 - b. No
7. Does she use illegal drugs, (by illegal drugs, I mean "uppers" or amphetamines, "meth," speed, angel dust, cocaine, "crack," street drugs or mixtures) or abuse prescription medications?
- a. Yes
 - b. No
8. Is she an alcoholic or problem drinker?
- a. Yes
 - b. No

9. Does she try to control/limit your spirituality?
- a. Yes
 - b. No
10. Does she constantly blame you and/or put you down?
- a. Yes
 - b. No
11. Has she destroyed or threatened to destroy things that belong to you?
- a. Yes
 - b. No
12. Has she threatened to harm a:
- a. Pet?
 - a. Yes
 - b. No
 - b. Elderly family member?
 - a. Yes
 - b. No
 - c. Person you care for with a disability?
 - a. Yes
 - b. No
13. Has she ever violated a restraining order?
- a. Yes
 - b. No

14. Does she stalk you, for example, follow or spy on you, leave threatening notes or messages on answering machine or cell phone, call you when you do not want her to?
- a. Yes
 - b. No
15. If you were being abused by her and tried to get help, do you think people would **not** take you seriously?
- a. Yes
 - b. No
16. If you were being abused by her, would fear of reinforcing negative stereotypes about female same-sex relationships and/or being discriminated against prevent you from seeking help, for example help from friends, domestic violence advocates, or health care providers?
- a. Yes
 - b. No
17. If you were having serious difficulties with her, would you keep it a secret out of fear or shame?
- a. Yes
 - b. No
18. Have **you** threatened or tried to kill yourself?
- a. Yes
 - b. No

Section: Post Traumatic Stress Checklist – Civilian (PCL-C)

Narrative: Next is a list of problems that people sometimes have in response to stressful life experiences. Please read each one carefully, and then check the boxes to the right to indicate how much you have been bothered by that problem in the past **month**.

	Not at all	A little bit	Moderately	Quite a bit	Extremely
Repeated, disturbing <i>memories, thoughts, or images</i> of a stressful experience from the past?	1	2	3	4	5
Repeated, disturbing <i>dreams</i> of a stressful experience from the past?	1	2	3	4	5
Suddenly <i>acting or feeling</i> as if a stressful experience <i>were happening again</i> (as if you were reliving it)?	1	2	3	4	5
Feeling <i>very upset</i> when <i>something reminded you</i> of a stressful experience from the past?	1	2	3	4	5
Having <i>physical reactions</i> (e.g., heart pounding, trouble breathing, sweating) when <i>something reminded you</i> of a stressful experience from the past?	1	2	3	4	5
Avoiding <i>thinking about or talking about</i> a stressful experience from the past or avoiding <i>having feelings</i> related to it?	1	2	3	4	5
Avoiding <i>activities or situations</i> because <i>they reminded you</i> of a stressful experience from the past?	1	2	3	4	5
Trouble <i>remembering important parts</i> of a stressful experience from the past?	1	2	3	4	5
<i>Loss of interest</i> in activities that you used to enjoy?	1	2	3	4	5
Feeling <i>distant or cut off</i> from other people?	1	2	3	4	5
Feeling <i>emotionally numb</i> or being unable to have loving feelings for those close to you?	1	2	3	4	5
Feeling as if your <i>future</i> will somehow be <i>cut short</i> ?	1	2	3	4	5
Trouble <i>falling or staying asleep</i> ?	1	2	3	4	5
Feeling <i>irritable</i> or having <i>angry outbursts</i> ?	1	2	3	4	5
Having <i>difficulty concentrating</i> ?	1	2	3	4	5
Being " <i>super-alert</i> " or watchful or on	1	2	3	4	5

guard?					
--------	--	--	--	--	--

Section: Center for Epidemiologic Studies Scale, Revised (CESD-R)

Narrative: Next is a list of the ways you might have felt or behaved. Please check the boxes to tell me how often you have felt this way in the past **two weeks**.

	Not at all <i>or</i> Less than 1 day	1-2 days	3-4 days	5-7 days	Nearly every day for 2 weeks
My appetite was poor.					
I could not shake off the blues.					
I had trouble keeping my mind on what I was doing.					
I felt depressed.					
My sleep was restless.					
I felt sad.					
I could not get going.					
Nothing made me happy.					
I felt like a bad person.					
I lost interest in my usual activities.					
I slept much more than usual.					
I felt like I was moving too slowly.					
I felt fidgety.					
I wished I were dead.					
I wanted to hurt myself.					
I was tired all the time.					
I did not like myself.					
I lost a lot of weight without trying to.					
I had a lot of trouble getting to sleep.					
I could not focus on the important things.					

Section: The Alcohol Use Disorders Identification Test (AUDIT)

Narrative: Because alcohol use can affect your health and can interfere with certain

medications and treatments, it is important that we ask some questions about your use of alcohol. Your answers will remain confidential so please be honest. Choose the option that best describes your answer to each question about your use of alcoholic beverages during the past **6-months**.

	0	1	2	3	4
How often do you have a drink containing alcohol?	Never	Monthly or less	2-4 times a month	2-3 times a week	4 or more times a week
How many drinks containing alcohol do you have on a typical day when you are drinking? <input type="checkbox"/> N/A	1 or 2	3 or 4	5 or 6	7 to 9	10 or more
How often do you have six or more drinks on one occasion?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
How often during the last 6 months have you found that you were not able to stop drinking once you had started?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
How often during the last 6 months have you failed to do what was normally expected of you because of drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
How often during the last 6 months have you needed a first drink in the morning to get yourself going after a heavy drinking session?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
How often during the last 6 months have you had a feeling of guilt or remorse after drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
How often during the last 6 months have you been unable to remember what happened the night before because of your drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily

Have you or someone else been injured because of your drinking?	No		Yes, but not in the last year		Yes, during the last year
Has a relative, friend, doctor, or other health care worker been concerned about your drinking or suggested you cut down?	No		Yes, but not in the last year		Yes, during the last year

Section: Drug Use Questionnaire (DAST-10)

Narrative: The following questions concern information about your possible involvement with drugs excluding alcohol and tobacco during the past year.

When the words “drug abuse” are used, they mean:

1. The use of prescribed or over-the-counter drugs in excess of the directions or
2. Any non-medical use of drugs.

The various types of drugs may include: cannabis (marijuana, hash), solvents, tranquilizers (Valium), barbiturates, cocaine, stimulants (speed), hallucinogens (LSD) or narcotics (heroin). Remember that the questions **do not** include alcohol or tobacco.

Please answer every question. If you have difficulty with a statement, then choose the response that is mostly right. Remember, everything in this interview is confidential.

	No	Yes
1. Have you used drugs other than those required for medical reasons?	0	1
2. Do you abuse more than one drug at a time?	0	1
3. Are you always able to stop using drugs when you want to?	0	1
4. Have you had "blackouts" or "flashbacks" as a result of drug use?	0	1
5. Do you ever feel bad or guilty about your drug use?	0	1

6. Does your partner (or parents) ever complain about your involvement with drugs?	0	1
7. Have you neglected your family because of your use of drugs?	0	1
8. Have you engaged in illegal activities in order to obtain drugs?	0	1
9. Have you ever experienced withdrawal symptoms (felt sick) when you stopped taking drugs?	0	1
10. Have you had medical problems as a result of your drug use (e.g., memory loss, hepatitis, convulsions, bleeding, etc.)?	0	1

Section: AIDS Clinical Trials Group (ACTG) Adherence Follow Up Questionnaire

Narrative:

Most people with HIV have many pills to take at different times during the day.

Many people find it hard to always remember their pills:

- Some people get busy and forget to carry their pills with them.
- Some people find it hard to take their pills according to all the instructions, such as “with meals,” or “on an empty stomach,” “every 8 hours,” “with plenty of fluids.”
- Some people decide to skip doses to avoid side effects or to just not be taking pills that day.

We need to understand how people with HIV are really doing with their pills.

Please tell us what you are **actually** doing. Don’t worry about telling us that you don’t take all your pills. We need to know what is really happening, not what you think we want to hear.

1. In the past year has your health care provider prescribed medications for you to take on a regular basis?
 - a. Yes
 - b. No [If no end here]
2. When was the last time you missed taking any of your medications?
 - a. Within the past week
 - b. 1-2 weeks ago
 - c. 2-4 weeks ago
 - d. 1-3 months ago
 - e. More than 3 months ago
 - f. Never skip medications
3. Most anti-HIV medications need to be taken on a schedule, such as “2 times a day” or “3 times a day” or “every 8 hours.” How closely did you follow your specific schedule over the last four days?
 - a. Never
 - b. Some of the time
 - c. About half of the time
 - d. Most of the time
 - e. All of the time
4. Do any of your anti-HIV medications have special instructions, such as “take with food” or “on an empty stomach” or “with plenty of fluids?”
 - a. Yes
 - b. No

4a. If Yes, how often did you follow those special instructions over the last four days?

- a. Never
- b. Some of the time
- c. About half of the time
- d. Most of the time
- e. All of the time

5. Some people find that they forget to take their pills on the weekend days. Did you miss any of your anti-HIV medications last weekend— last Saturday or Sunday?

- a. Yes
- b. No

Narrative: People may miss taking their medications for various reasons. Here is a list of possible reasons why you may have missed taking any medications within the past **month**.

In the past **month**, how often have you missed taking your medications because you:

	Never	Rarely	Sometimes	Often
1. Were away from home?				
2. Were busy with other things?				
3. Simply forgot?				
4. Had too many pills to take?				
5. Wanted to avoid side effects?				
6. Did not want others to notice you taking medication?				
7. Had a change in daily routine?				
8. Felt like the drug was toxic/harmful?				
9. Fell asleep/slept through dose time?				
10. Felt sick or ill?				
11. Felt depressed/overwhelmed?				

12. Had problem taking pills at specified times (with meals, on empty stomach, etc.)?				
13. Ran out of pills?				
14. Felt good?				

Phase 1: Medical Records Abstraction Tool

Section: Demographics

1. Participant ID:
2. DOB (mm/dd/yyyy):
3. Date of survey (mm/dd/yyyy):
4. Does the participant have any type of health insurance?
 - a. Yes
 - b. No
5. If yes, what type of health insurance?
 - a. Private insurance (such as Kaiser, Blue Cross Blue Shield)
 - b. Public insurance (such as Medicaid, Medicare, SSI)

Section: Laboratory Values

1. Most recent CD4 count:
 - 1.1. Date of most recent CD4 count (mm/dd/yyyy):
2. Most recent viral load:
 - 2.1. Date of most recent viral load (mm/dd/yyyy):
3. CD4 nadir:
 - 3.1. Date of CD4 nadir (mm/dd/yyyy):

Section: Clinic Visits, Hospitalizations, Infections and Treatments

1. Number of scheduled clinic visits in 1 year prior to survey:
 - a. Type of clinic (free text) for each visit.
2. Number of missed clinic visits in 1 year prior to survey:
 - a. Type of clinic missed (free text) for each missed visit above.
3. Number of hospitalization in the year prior to survey:

- a. Reasons for hospitalization(s) (free text, separate box for each hospitalization above)
 - b. Total number of inpatient hospital days in the year prior to survey:
4. Tested for sexually transmitted infections in the year prior to survey?
 - a. Yes
 - b. No
 - 4.1 If yes, which STIs / Results / Treatment (Select all that apply)
 - a. Syphilis
 - a. Negative
 - b. Positive
 - I. Documented treatment
 - II. No documented treatment
 - b. Gonorrhea
 - a. Negative
 - b. Positive
 - I. Documented treatment
 - II. No documented treatment
 - c. Chlamydia
 - a. Negative
 - b. Positive
 - I. Documented treatment
 - II. No documented treatment
 - d. Herpes Simplex Virus
 - a. Negative
 - b. Positive
 - I. Documented treatment
 - II. No documented treatment
 - e. HPV
 - a. Negative
 - b. Positive
 - I. Documented treatment
 - II. No documented treatment
 - f. Trichomoniasis
 - a. Negative
 - b. Positive
 - I. Documented treatment
 - II. No documented treatment
5. Non-STI infection documented in the year prior to survey?
 - a. Yes
 - b. No

6. Number of non-STI infections documented in the year prior to survey:

6.1 For each infection:

Infection type (free text box):

Treatment completed or in progress?

- a. Yes
- b. No

7. Any substance abuse screening or behavior noted in the medical record?

- a. Yes
- b. No

7.1. If yes: Positive screening / drug abuse behavior noted?

- a. Yes
- b. No

7.1.1 If yes to 7.1, what behavior is noted? (select all that apply)

- i. IVDU current in past year
- ii. IVDU history
- iii. Non-IV illicit drug use current in past year
- iv. Non-IV illicit drug use history
- v. Methadone maintenance program
- vi. Suboxone maintenance program

8. Was the patient prescribed ART in the past year?

9. Was the patient's ART regimen changed in the past year?

9.1 Date most recent ART regimen started (mm/dd/yyyy):

10. What ARTs are included in the patient's current regimen? (select all that apply)

Multi-class Combination Products

- a. Atripla (efavirenz, emtricitabine and tenofovir)
- b. Complera (emtricitabine, rilpivirine, and tenofovir)
- c. Stribild (elvitegravir, cobicistat, emtricitabine, tenofovir)

Nucleoside Reverse Transcriptase Inhibitors (NRTIs)

- d. Combivir (lamivudine and zidovudine)
- e. Emtriva (emtricitabine, FTC)
- f. Epivir (lamivudine, 3TC)
- g. Epzicom (abacavir and lamivudine)
- h. Hivid (zalcitabine, dideoxycytidine, ddC (no longer marketed))
- i. Retrovir (zidovudine, azidothymidine, AZT, ZDV)
- j. Trizivir (abacavir, zidovudine, and lamivudine)
- k. Truvada (tenofovir and emtricitabine)
- l. Videx EC (enteric coated didanosine, ddI EC)
- m. Videx (didanosine, dideoxyinosine, ddI)
- n. Viread (tenofovir, TDF)
- o. Zerit (stavudine, d4T)
- p. Ziagen (abacavir, ABC)

Nonnucleoside Reverse Transcriptase Inhibitors (NNRTIs)

- q. Edurant (rilpivirine)
- r. Intelence (etravirine)
- s. Rescriptor (delavirdine, DLV)
- t. Sustiva (efavirenz, EFV)
- u. Viramune (nevirapine, NVP)
- v. Viramune XR (nevirapine, NVP)

Protease Inhibitors (PIs)

- w. Agenerase (amprenavir, APV)
- x. Aptivus (tipranavir, TPV)
- y. Crixivan (indinavir, IDV)
- z. Fortovase (saquinavir)
- aa. Invirase (saquinavir mesylate, SQV)
- bb. Kaletra (lopinavir and ritonavir, LPV/RTV)
- cc. Lexiva (Fosamprenavir Calcium, FOS-APV)
- dd. Norvir (ritonavir, RTV)
- ee. Prezista (darunavir)
- ff. Reyataz (atazanavir, ATV)
- gg. Viracept (nelfinavir mesylate, NFV)

Fusion Inhibitors

- hh. Fuzeon (enfuvirtide, T-20)

Entry Inhibitors

- ii. Selzentry (maraviroc)

Integrase Inhibitors

jj. Isentress (raltegravir)

Other

kk. (include free text box to specify)

Section: AIDS Defining Illnesses

1. Candidiasis of bronchi, trachea, or lungs
 - a. Yes
 - b. No
2. Candidiasis of esophagus[†]
 - a. Yes
 - b. No
3. Cervical cancer, invasive[§]
 - a. Yes
 - b. No
4. Coccidioidomycosis, disseminated or extrapulmonary
 - a. Yes
 - b. No
5. Cryptococcosis, extrapulmonary
 - a. Yes
 - b. No
6. Cryptosporidiosis, chronic intestinal (>1 month's duration)
 - a. Yes
 - b. No
7. Cytomegalovirus disease (other than liver, spleen, or nodes), onset at age >1 month (CMV)
 - a. Yes
 - b. No
8. Cytomegalovirus retinitis (with loss of vision)[†] (CMV)
 - a. Yes
 - b. No
9. Encephalopathy, HIV related
 - a. Yes
 - b. No
10. Herpes simplex: chronic ulcers (>1 month's duration) or bronchitis, pneumonitis, or esophagitis (onset at age >1 month)
 - a. Yes
 - b. No
11. Histoplasmosis, disseminated or extrapulmonary

- a. Yes
- b. No
- 12. Isosporiasis, chronic intestinal (>1 month's duration)
 - a. Yes
 - b. No
- 13. Kaposi sarcoma[†]
 - a. Yes
 - b. No
- 14. Lymphoma, Burkitt (or equivalent term)
 - a. Yes
 - b. No
- 15. Lymphoma, immunoblastic (or equivalent term)
 - a. Yes
 - b. No
- 16. Lymphoma, primary, of brain
 - a. Yes
 - b. No
- 17. *Mycobacterium avium* complex or *Mycobacterium kansasii*, disseminated or extrapulmonary[†] (MAC)
 - a. Yes
 - b. No
- 18. *Mycobacterium tuberculosis* of any site, pulmonary,^{†§} disseminated,[†] or extrapulmonary[†] (TB)
 - a. Yes
 - b. No
- 19. *Mycobacterium*, other species or unidentified species, disseminated[†] or extrapulmonary[†]
 - a. Yes
 - b. No
- 20. *Pneumocystis jirovecii* pneumonia[†] (pneumocystic carinii; PCP; PJP)
 - a. Yes
 - b. No
- 21. Pneumonia, recurrent^{†§}
 - a. Yes
 - b. No
- 22. Progressive multifocal leukoencephalopathy (PML)
 - a. Yes
 - b. No
- 23. *Salmonella* septicemia, recurrent
 - a. Yes
 - b. No
- 24. Toxoplasmosis of brain, onset at age >1 month[†]
 - a. Yes
 - b. No
- 25. Wasting syndrome attributed to HIV
 - a. Yes

b. No

26. Other documented diagnosis of AIDS

a. Yes

b. No

a. If yes, provide rationale for AIDS diagnosis (free text box)

Section: MRA Complete

1. MRA complete

a. Yes

b. No

2. Archive review complete

a. Yes

b. No

Phase 2: Interview Guide (Version 1)

OVERALL HEALTH SYSTEM and HIV TREATMENT EXPERIENCE

Tell me about your experiences with health care systems.

Probes: Interactions with doctors and nurses. Types of care you receive – HIV, gyn, preventative, follow up.

What have your experiences with health care been like in since you have been coming to the Moore Clinic?

I know HIV treatment can be complex and challenging to manage tell me about how you manage your treatment.

Probes: What things make it easier for you to manage your HIV treatment? What things make it harder for you to manage your HIV treatment?

MENTAL HEALTH [PCL Score ____ CESD Score ____]

We talked about your experiences with the health system in general and with your HIV providers, can you tell me a little about how your mental health needs are addressed?

Probes: How does feeling sad or depressed change how you manage your health care? How does feeling anxious or nervous change how you manage your health care?

SUBSTANCE ABUSE [SA in self report ____ SA in chart review ____]

On the survey you indicated that you have used illegal drugs in the past year, can you talk to me more about this?

Probes: How often do you use? How does it impact your day to day life (treatment programs, finances)?

How do you think your drug use has affected your ability to manage your health care and HIV treatment?

Probes: Does it interfere with making and keeping appointments? Taking medications? Paying for medications?

How has your drug use been addressed by your health care team?

Probes: Have your doctors or nurses asked you about drug use? Have they provided you with any resources / referrals? What things that they did were helpful? Not helpful?

INTIMATE PARTNER VIOLENCE

If abuser is current partner:

When you filled out the survey it asked questions about your relationship with your partner / boyfriend / husband. Are you still in a relationship with the same person?

If yes: Can you share with me what your current relationship with looks like?

If no: Go to previous partner section.

How does your partner change how you participate in your HIV treatment?

Probes: What things does your partner do that make it easier to manage your HIV treatment? Harder to manage your HIV treatment?

What things do you do to keep up with your treatment when your partner is interfering?

It sounds like there are many ways that your relationship affects your HIV care, how has your health care provider addressed your relationship in your HIV care?

If abuser is a previous partner:

When you filled out the survey it asked questions about your relationship with your ex-partner / boyfriend / husband.

Can you tell me about what that relationship looked like?

How did your partner change how you participate in your HIV treatment?

Probes: What things does your partner do that make it easier to manage your HIV treatment? Harder to manage your HIV treatment?

What things did you do to keep up with your treatment when your partner is interfering?

It sounds like there are many ways that your relationship affects your HIV care, how has your health care provider addressed your relationship in your HIV care?

REPRODUCTIVE COERCION [PC ____ BCS ____]

I'd also like to know more about your reproductive health and reproductive choices.

Some women who have experienced violence in their relationship also talk about feeling pressured regarding their reproductive choices.

Can you tell me how you make decisions regarding having or not having children?

Probes: Who is involved in decision-making? Who do you talk to? Where do you get information from?

What roles has your partner (ex-partner) played in your decision making regarding having or not having children?

How has your health care provider addressed your sexual health and reproductive choices in your HIV care?

CONCLUSIONS

We have talked about a lot of things that effect how you manage your HIV treatment (your personal relationships, sexual health, mental health, substance use) what advice would you give to women in your situation regarding how to best manage the many piece involved in their health care?

What things do you wish your health care providers would do to make it easier for you to participate in care?

Probes: What additional resources would be helpful?

Is there anything else important that you would like to share that I didn't ask about?

General Prompts: Tell me more about that... Give me an example of that... Describe a time when... What does that look like?

Phase 2: Interview Guide (Version 2)

OVERALL HEALTH SYSTEM and HIV TREATMENT EXPERIENCE

Tell me about a bit about your HIV experience.

What have your experiences with health care been like in since you have been coming to the Moore Clinic?

Probes: Interactions with doctors and nurses. Types of care you receive – HIV, gyn, preventative, follow up.

I know HIV treatment can be complex and challenging to manage tell me about how you manage your treatment.

Probes: What things make it easier for you to manage your HIV treatment? What things make it harder for you to manage your HIV treatment?

MENTAL HEALTH [PCL Score ____ CESD Score ____]

Most people with HIV experience stress or anxiety related to managing their care (medications, appointment, finances...). What kinds of stress have you experienced related to your HIV?

How have your doctors addressed this stress?

Probes: How does feeling sad or depressed change how you manage your health care? How does feeling anxious or nervous change how you manage your health care?

INTIMATE PARTNER VIOLENCE

Another source of stress for many people is their relationships. Can you tell me about your recent relationships?

Probes: What kind of things do you argue about? What do these arguments look like? Are they ever physical? Did that look like other relationships you've had?

How have your relationships changed how you participate in your HIV treatment?

Probes: What things does your partner do that make it easier to manage your HIV treatment? Harder to manage your HIV treatment?

REPRODUCTIVE COERCION [PC ____ BCS ____]

I'd also like to know more about your reproductive health and reproductive choices. Some women who have experienced violence in their relationship also talk about feeling pressured regarding their reproductive choices.

Can you tell me how you make decisions regarding having or not having children?

Probes: Who is involved in decision-making? Who do you talk to? Where do you get information from?

What roles has your partner (ex-partner) played in your decision making regarding having or not having children?

How has your health care provider addressed your sexual health and reproductive choices in your HIV care?

SUBSTANCE ABUSE [SA in self report ____ SA in chart review ____]

One way that folks deal with stress is through drugs or alcohol. Have drugs or alcohol played a role in your HIV care?

Probes: How often do you use? How does it impact your day to day life (treatment programs, finances)?

Does it interfere with making and keeping appointments? Taking medications? Paying for medications?

How has your drug/alcohol use been addressed by your health care team?

Probes: Have your doctors or nurses asked you about drug use? Have they provided you with any resources / referrals? What things that they did were helpful? Not helpful?

CONCLUSIONS

We have talked about a lot of types of stress, what advice would you give to women in your situation regarding how to best manage the many pieces involved in their health care?

What things do you wish your health care providers do that help?

What things do you wish your health care providers would do to help?

Probes: What additional resources would be helpful?

Is there anything else important that you would like to share that I didn't ask about?

General Prompts: Tell me more about that... Give me an example of that... Describe a time when... What does that look like?

CURRICULUM VITAE

PERSONAL DATA

Jocelyn Christine Anderson, PhD(c), MSN, RN, FNE-A, SANE-A, CNRN

Business Address Johns Hopkins University School of Nursing
525 N. Wolfe St.
Baltimore, MD 21205
Email: jocelyna@jhu.edu

Mercy Medical Center
Forensic Nurse Examiner Program
301 St. Paul Place
Baltimore, MD 21202
Phone: 410-332-9494
Fax: 410-649-3484
Email: janders5@mdmercy.com

EDUCATION

In Progress	PhD, Doctor of Philosophy, Johns Hopkins University School of Nursing, Baltimore, MD
2010	MSN , Master of Science, Clinical Nurse Specialist – Forensic Nursing, Johns Hopkins University School of Nursing, Baltimore, MD
2008	BSN , Bachelor of Science, Nursing, St. Cloud State University, St. Cloud, MN

CURRENT LICENSE

2008-	Registered Nurse, State of Maryland	R182565
2014-	Forensic Nurse Examiner – Adolescent/Adult (FNE-A)	R182565

CERTIFICATION

2015-	Sexual Assault Nurse Examiner – Adult/Adolescent
2010-	Certified Registered Neuroscience Nurse

PROFESSIONAL EXPERIENCE

2014-	Forensic Nurse Examiner, Mercy Medical Center, Baltimore, MD
-------	--

2014-	Per Diem Informatics Support, Johns Hopkins Medical Institutions, Baltimore, MD
2013-	Per Diem Nurse Clinician, Johns Hopkins Hospital, Baltimore, MD
2008-2013	Nurse Clinician IM, Johns Hopkins Hospital, Baltimore, MD
2009-2010	Forensic Intern, Johns Hopkins University School of Nursing, Baltimore, MD
2005-2008	Patient Care Assistant, St. Cloud Hospital, St. Cloud, MN
2007	Student Nurse Intern, St. Cloud Hospital, St. Cloud, MN
2004-2005	Nursing Assistant, St. Scholastica Convent, St. Cloud, MN

HONORS AND AWARDS

2014-2015	Johns Hopkins Urban Health Institute Community Partnership Grant, (\$5000), Student partner. Baltimore, MD
2014	Johns Hopkins University School of Nursing, Professional Development Award Recipient, Baltimore, MD
2014	Sigma Theta Tau Nu Beta Chapter Research Grant (\$2000) Recipient, Baltimore, MD
2014	A.T. Blades Scholarship Recipient, Johns Hopkins University School of Nursing, Baltimore, MD
2013	Tylenol Future Care Scholarship Recipient
2013	Johns Hopkins University School of Nursing Graduate Teaching Award Recipient
2013	Johns Hopkins University Center for Global Health, Global Health Established Field Placement Award, (\$3500), Recipient. Baltimore, MD
2012-2013	Johns Hopkins Urban Health Institute Community Partnership Grant, (\$5000), Co-student partner. Baltimore, MD
2012	Johns Hopkins Global mHealth Initiative, mHealth Summit Scholarship Recipient, Baltimore, MD

2011-2013	Interdisciplinary Training on Preventing and Addressing Violence in Families, Training Grant Recipient, T32HD064428, PI: Jacquelyn Campbell, PhD Johns Hopkins University School of Nursing, Baltimore, MD
2008-2010	Louise Cavangaro Endowed Scholarship Recipient, Johns Hopkins University School of Nursing, Baltimore, MD
2008	St. Teresa's University Alumni Association Scholarship Recipient, Rochester, MN
2008	Sigma Theta Tau, Kappa-Phi-at-Large Chapter Nursing Scholarship Recipient, St. Joseph, MN
2008	St. Cloud State University Center for International Studies Scholarship Recipient, St. Cloud, MN
2008	Kay Bayne Nursing Scholarship Recipient, St. Cloud, MN
2005-2008	St. Cloud State University Academic Scholarship, St. Cloud, MN
2006	Minnesota Nurses Association Foundation Scholarship Recipient, St. Cloud, MN
2004	North Star Colorguard Circuit Marching Member Scholarship Recipient, Minneapolis, MN
2003	ROCORI Area Dollars for Scholars Scholarship Recipient, Cold Spring, MN
2002	Gold Award Recipient, Girls Scouts of The United States of America

RESEARCH

2015-	Testing alternate light source findings of make-up and make-up removal products. PI: Jocelyn Anderson, MSN & Erin Pollitt, MHA. Johns Hopkins University School of Nursing/Mercy Medical Center. Role: Co-Principal Investigator
2014-	Evaluation and dissemination of a smartphone application to improve access to medical forensic care following sexual assault and domestic violence in Baltimore City. Funding from: Johns Hopkins University Urban Health Institute PI: Jocelyn Anderson,

	MSN & Erin Lamar, MHA Johns Hopkins University School of Nursing/Mercy Medical Center. Role: Co-Principal Investigator
2014	Testing Common Skin Products to Determine Fluorescence or Absorption of Alternate Light PIs: Erin Lamar, MHA & Glynis D'Silva, BSN, Mercy Medical Center. Role: Co-investigator.
2014-2016	Ethical Considerations in Intimate Partner Violence Research: Examining the Role of Stigma. Funding from: R25DA031608 PI: Nicole Overstreet, PhD Clark University. Role: Site coordinator
2013-	Effects of Partner Violence and Mental Health on HIV Disease Progression in Women NIMH F31MH100995 PI: Jocelyn Anderson, MSN, Johns Hopkins University School of Nursing. Role: Principal Investigator
	Additional funding provided by: Sigma Theta Tau Nu Beta Chapter Research Grant (\$2,000). Baltimore, MD
2013	HIV Prevention Trials Network (HPTN) 069: NEXT-PREP: Novel Exploration of Therapeutics for Pre-Exposure Prophylaxis. Site PI: Jason Farley, PhD, Johns Hopkins University School of Nursing. Role: Community Advisory Board Member
2012-2015	Effectiveness of a Safety Intervention for Dating Violence (Designing and Testing a Smart Phone Based Decision Aid Application "App" for College Aged Women in Unsafe Relationships). NICHD R01HD076881. Additional Funding from: One Love Foundation & Johns Hopkins University Urban Health Institute. PI: Nancy Glass, PhD, Johns Hopkins University School of Nursing. Role: Research Assistant
2011-2014	The IRIS Project: Internet-Based Intervention to Improve Mental Health Outcomes for Abused Women. NIMH R01MH085641, PI: Nancy Glass, PhD, Johns Hopkins University School of Nursing. Role: Research Assistant
2011-2012	Sexual Assault Nurse Examiner Programs' HIV PEP Practices. PI: Daniel Sheridan, PhD, Johns Hopkins University School of Nursing. Role: Co-investigator
2011-2013	Abuse Status and Health Consequences for African American and Afro-Caribbean Women. NCMHD 5P20MD002286, PI: Jacquelyn Campbell, PhD, Johns Hopkins University School of Nursing & Doris Campbell, PhD, University of the Virgin Islands. Role: Research Assistant

- 2010 Prevalence of Delirium in Trauma Patients. PI: Kathryn VonRueden, MSN. University of Maryland, R. Adam Cooley Shock Trauma Center. Role: Data Analyst
- 2010 Workplace Violence, Nursing, Health and Employment Outcomes. “Safe@Work” NIOSH 5R01OH007953-03PI PI: Jacquelyn Campbell, PhD. Johns Hopkins University School of Nursing. Role: Research Assistant

PRACTICE

- 2014- Mercy Medical Center Forensic Nurse Examiner Research Committee, member
- 2014- Mercy Medical Center Forensic Nurse Examiner Education Committee, member
- 2012- Johns Hopkins Hospital Neuroscience Nursing Informatics Committee, member

SCHOLARSHIP

Publications

Journal Articles- Peer Reviewed

1. *Pollitt, E. N., **Anderson, J.C.**, Scafide, K., Holbrook, D., D’Silva, G., & Sheridan, D.J. (In Press). Alternate light source findings of common topical products. *Journal of Forensic Nursing*.
2. ***Anderson, J.C.**, Stockman, J.K., Sabri, B., Campbell, D.W., & Campbell, J.C. (2015). Injury Outcomes in African American and African Caribbean Women: The Role of Intimate Partner Violence. *Journal of Emergency Nursing*. 41(1) 36-42. doi: 10.1016/j.jen.2014.01.015
3. *Draughon, J.E., **Anderson, J.C.**, Hanson, B., & Sheridan, D.J. (2014). HIV post-exposure prophylaxis practices: A survey of sexual assault and forensic nurse examiner program coordinators. *Journal of the Association of Nurses in AIDS Care*. 25(1 Suppl), S90–S100. doi:10.1016/j.jana.2013.07.001
4. **Anderson, J.C.**, Campbell, J.C., & Farley, J. (2013). Interventions to address HIV and intimate partner violence in sub-Saharan Africa: A Literature Review. *Journal of the Association of Nurses in AIDS Care* 24(4) 383-390. doi: 10.1016/j.jana.2013.03.003
5. *Stockman, J. K., Lucea, M. B., Draughon, J. E., Sabri, B., **Anderson, J. C.**, Bertrand, D., Campbell, D. W., Callwood, G. B., & Campbell, J. C. (2013). Intimate partner violence and HIV risk factors among African American and

African Caribbean women in clinic-based settings. *AIDS Care*. 25(4) 472-80. doi: 10.1080/09540121.2012.722602

6. **Anderson, J. C.**, & Sheridan, D. J. (2012) Female genital injury following consensual and nonconsensual sex: State of the science. *Journal of Emergency Nursing*. 38(6) 518-522. doi: 10.1016/j.jen.2010.10.014

*Data-based publication

Book Chapters

1. Campbell, J.C., Sabri, B., **Anderson, J.C.**, & Barcelona de Mendoza, V. (2016). *A Feminist Public Health Approach to Marital Rape*. In K. Yllo & G. Torres (Eds). *Marital Rape: Consent, Marriage and Social Change in Global Context*. Oxford University Press.
2. **Anderson, J.C.**, Draughon, J.E., & Campbell, J.C. (2013). *Fatality and Health Risks Associated with Intimate Partner Sexual Violence*. In L. McOrmond-Plummer, P. Eastaer & J. Levy-Peck. (Eds). *Intimate Partner Sexual Violence: A Multidisciplinary Approach to Survivor Support and System Change*. London: Jessica Kingsley Publisher.
3. Williams, J. P., Thimsen, K., Primeau, A., **Anderson, J.** & William, J.D. (2012). *Elder abuse*. In R. Constantino, P. Crane & S. Young (Eds.) *Forensic Nursing: Evidence Based Practice and Principles*. Philadelphia, PA: F.A. Davis

Presentations

Peer Reviewed – International

- | | |
|--------------------|---|
| September 16, 2015 | Anderson, J.C. (Presenter) , Campbell, J.C, & Glass, N. <i>Effects of partner violence on adherence to HIV care and treatment markers among women in Baltimore City</i> . Sexual Violence Research Initiative Forum, Stellenbosch, South Africa |
| November 2014 | Campbell, J. C. (Presenter), Anderson, J. C. (Presenter) , Stockman, J., Callwood, G. & Campbell, D. <i>Direct and Indirect Effects of Head Injuries and Depression on Physical Health Symptoms in Abused Women</i> , International Council on Women's Health Issues, Cape Town, South Africa. |
| November 2014 | Campbell, J. C. (Presenter), Draughon, J. E., Lucea, M. B., Stockman, J. K. Campbell, D., Anderson, J. C. (Presenter) . <i>HIV Risk Among Abused Women of African Descent: Results from the ACAAWS Study</i> . International Council on Women's Health Issues, Cape Town, South Africa. |
| October 22, 2013 | Anderson, J.C. (Presenter) , Stockman, J., Sabri, B., Campbell, D.W, Campbell, J.C. <i>Injuries in African American and African</i> |

Caribbean Women: The Role of Intimate Partner Violence,
International Association of Forensic Nurses, Anaheim, CA.

- June 18, 2013 **Anderson, J. C. (Presenter)**, Campbell, J.C., Draughon, J., Lucea, M.B., Campbell, D. *Impact of intimate partner violence on sexually transmitted infections and reproductive health in women of African descent: Results from the ACAAWS Study*, Nursing Network Against Violence Against Women International, Vancouver, British Columbia, Canada.
- October 13, 2012 Draughon, J.E (Presenter), **Anderson, J.C.**, Hanson, B., & Sheridan, D.J. *HIV post-exposure prophylaxis practices: A survey of sexual assault and forensic nurse examiner program coordinators*. International Association of Forensic Nurse Scientific Assembly. Fajardo, Puerto Rico.
- March 6, 2012 **Anderson, J. C. (Presenter)** & Sheridan, D. J. *Genital Injury Following Consensual and Nonconsensual Intercourse: State of the Science*, Nursing Network on Violence Against Women International, Charlottesville, VA.

Peer Reviewed – National

- October 30, 2015 **Anderson, J.C.** & Campbell, J.C (Presenter). *Effects of Partner Violence on Mental Health and HIV Disease Progression in Women: Preliminary Results*. Association of Nurses in AIDS Care, Annual Conference. Chicago, IL
- March 21, 2015 Campbell, J.C. (Presenter), McFadgion, A. (Presenter), **Anderson, J.C. (Presenter)**, & Bergin, A.. *The Impact of Traumatic Brain Injury: Screening protocol and Response for Medical and Advocacy Services*, National Conference on Health and Domestic Violence, Washington, DC.
- March 20, 2015 Stockman, J. (Presenter), Alexander, K. (Presenter) & **Anderson, J.C. (Presenter)** *A Double-edged Sword: Gender-based Violence and HIV Among Vulnerable Women in the United States*, (Symposium) National Conference on Health and Domestic Violence, Washington, DC.
- September 19, 2014 Campbell, J.C. (Presenter), **Anderson, J.C.**, Stockman, J., Gill, J., Callwood, G., Campbell, D.W. *Head Injuries and Healthcare Visits Among African American and African Caribbean Women Who Have Experienced Intimate Partner Abuse*, Council for the Advancement of Nursing Science, Washington, DC.

- June 1, 2013 Shillam, C. (Presenter), **Anderson, J. (Presenter)**, & Taylor, L. (Presenter) *Multi-faceted Curriculum Designed to Meet the Needs of Students with Multiple Learning Styles*, Lilly Conference on College and University Teaching, Bethesda, MD
- April 18, 2013 **Anderson, J.C. (Presenter)**, Merl, K., Glass, N. *The IRIS Project: Using the Internet for IPV Research and Intervention*, Academy on Violence and Abuse, Minneapolis, MN.
- April 18, 2013 **Anderson, J.C. (Presenter)**, Stockman, J., Sabri, B., McFadgion, A. Campbell, D.W, Campbell, J.C. *Injuries in African American and African Caribbean Women: The Role of Intimate Partner Violence*, Academy on Violence and Abuse, Minneapolis, MN.

Peer Reviewed – Local

- October 21, 2015 Pollitt, E. (Presenter) & **Anderson, J.C. (Presenter)** *Testing Common Topical Products to Determine Fluorescence or Absorption of Alternate Light (Phase II): Research Findings and Clinical Implications for ALS Use in Forensic Examiner Programs*. Mercy Medical Center Evidence Based Practice Symposium, Baltimore, MD. (Winner Best Poster/Presentation)

Invited - International

- March 22, 2016 Faugno, D., Allen, A., Holbrook, D., (Moderators). *SAFE Case Review, Invited Case Presentation*. End Violence Against Women International: International Conference on Sexual Assault, Domestic Violence and Engaging Men and Boys. Washington, DC.
- October 29&30, 2015 Parrish, J. (Presenter), Marcozzi, H. (Presenter), Pollitt, E. (Presenter), **Anderson, J. (Presenter)**, Stahlmann, N. (Presenter), & Costello, A. (Presenter) *Alternate Light Source: Application and Integration* (Workshop). IAFN: International Conference on Forensic Nursing Science and Practice. Orlando, FL

Invited – Local

- April 20, 2016 Pollitt, E. & **Anderson, J.** *Alternate Light Source Use in Forensic Examinations, Recent Research at the Dynamics of Strangulation and Alternate Light Source Use in Forensic Exams Training*, Mercy Medical Center, Baltimore, MD
- March 5, 2016 **Anderson, J. (Presenter)** & Patch, M. (Presenter) *Intimate Partner Violence...What Do I Do?: Practical Pearls for Nursing*

	Care. Black Nurses Association of Greater Washington DC Area, 2016 Annual Salute to the Black Nurse of the Year and Scholarship Awards Luncheon, Washington, DC
October 13, 2015	<i>Effects of Partner Violence and Mental Health on HIV Disease Progression in Women - My F31 Process.</i> Johns Hopkins University School of Nursing, NR110.826 Special Topics in Violence Research, Baltimore, MD
April 22, 2014	<i>Effects of Partner Violence and Mental Health on HIV Disease Progression in Women - My F31 Process.</i> Johns Hopkins University School of Nursing, NR110.826 Special Topics in Violence Research, Baltimore, MD
April 14, 2014	<i>Sexual Assault Nursing.</i> Johns Hopkins University School of Nursing, Midwifery Interest Group, Baltimore, MD
February 28, 2012	Glass, N. E. (Presenter) & Anderson, J. C. (Presenter) <i>The IRIS Project: Recruitment and Retention Strategies for Internet-Based IPV Research</i> , Johns Hopkins University School of Nursing, NR110.826 Special Topics in Violence Research, Baltimore, MD
January 17, 2012	<i>Refining Your Neurological Assessment Skills</i> , Advanced Clinical Topics in Neuroscience Nursing, Johns Hopkins Hospital, Baltimore, MD
November 30, 2010	<i>Prevalence of Delirium in Trauma Patients</i> , Johns Hopkins University School of Nursing, NR110.522: Clinical Nurse Specialist Outcomes Specialty, Baltimore, MD
November 16, 2010	<i>Elevated ICP and Cryptococcal Meningitis</i> , Neuroscience Nursing Grand Rounds, Johns Hopkins Hospital, Baltimore, MD
November 2010	<i>Delirium and Agitation</i> , ICU and IMC Education Day 2010, University of Maryland, R Adams Cowley Shock Trauma Center, Baltimore, MD
June 2010	<i>Sepsis a Forensic Perspective</i> , Johns Hopkins University School of Nursing, NR110.521: Clinical Nurse Specialist Role Specialty, Baltimore, MD
July 14, 2010	<i>Worst Headache of Her Life</i> , Neuroscience Nursing Grand Rounds, Johns Hopkins Hospital, Baltimore, MD
December 2009	<i>Best Practice: Timely Initiation of Palliative Care in the Older Adult with Life-threatening Illness</i> , Johns Hopkins University

School of Nursing, NR110.536: Health Assessment and Measurement: Adult/Geriatric Variations, Baltimore, MD

April 2009 *Clinical Rounds: Glioblastoma Multiforme*, Johns Hopkins University School of Nursing, NR110.502: Physiological/Pathophysiological Basis for Advanced Nursing Practice, Baltimore, MD

Peer Reviewed Poster Presentations

- July 18-22, 2016 **Anderson, J.C., (Presenter).** Glass, N., Farley, J. and Campbell, J.C. *Prevalence of intimate partner violence and physical and mental health outcomes of women living with HIV in an urban clinic setting.* AIDS 2016, The 21st International AIDS Society Conference. Durban, South Africa.
- May 2016 Grace, K.T. (Presenter) & **Anderson, J.C.** *Reproductive coercion: A systematic review.* American College of Nurse Midwives 61st Annual Meeting, Albuquerque, NM.
- March 22-24, 2016 Breads, J. (Presenter), **Anderson, J.,** & Neverdon, T. *Addressing the Unique Needs of Immigrant and Refugee Survivors of Sexual Assault and Domestic Violence in Baltimore City.* End Violence Against Women International: International Conference on Sexual Assault, Domestic Violence and Engaging Men and Boys. Washington, DC. (Awarded: first place in poster presentation)
- October 28-31, 2015 Pollitt, E. (Presenter) & **Anderson, J.C. (Presenter)** *Testing Common Topical Products to Determine Fluorescence or Absorption of Alternate Light: Research Findings and Clinical Implications for ALS Use in Forensic Examiner Programs.* IAFN: International Conference on Forensic Nursing Science and Practice. Orlando, FL (Awarded: third place in poster presentation)
- October 21, 2015 Pollitt, E. (Presenter) & **Anderson, J.C. (Presenter)** *Testing Common Topical Products to Determine Fluorescence or Absorption of Alternate Light (Phase II): Research Findings and Clinical Implications for ALS Use in Forensic Examiner Programs.* Mercy Medical Center Evidence Based Practice Symposium, Baltimore, MD. (Awarded: Best Poster/Presentation)
- September 2015 **Anderson, J. C. (Presenter)** & Pollitt, E. *Alternate Light Source in Forensic Examiner Programs: Research Findings and Clinical Implications.* Sexual Violence Research Initiative, Stellenbosch, South Africa

- April 9-11, 2015 Williams, J. (Presenter), Jensen, J. (Presenter), & **Anderson, J.C.**
The Impact of IPV, PTSD, and Depression on Antiretroviral Adherence Among HIV Positive Women. Nursing Network on Violence Against Women International, Atlanta GA
- November 2014 **Anderson, J.C. (Presenter)**, Glass, N. E., Farley, J. & Campbell, J.C. *A Mixed Methods Study to Examine the Effects of Intimate Partner Violence and Mental Health on HIV Disease Progression in Women.* International Council on Women's Health Issues, Cape Town, South Africa

EDITORIAL ACTIVITIES

Ad-Hoc Reviewer

- 2014 BMJ Open
 2014 Journal of Women's Health Care
 2014 Journal of the International AIDS Society
 2014 Advances in Nursing Doctoral Education and Research

PROFESSIONAL ACTIVITIES

Professional Memberships

- 2013 – 2014 Academy on Violence and Abuse
- 2012 – Nursing Network on Violence Against Women International
 2015 – Student Advisory Committee Member
- 2010 – 2012 American Association of Neuroscience Nurses
 2015 – 2016
- 2008 – Sigma Theta Tau, Nursing Honor Society
- 2008 – International Association of Forensic Nurses
 2016 – MD/DC Chapter Treasurer

Expert Witness Testimony

- June 20, 2016 Expert witness for the prosecution, State of Maryland vs. James Caldwell, Baltimore City Circuit Court
- January 13, 2016 Expert witness for the prosecution, State of Maryland vs. Robert Jackson, Baltimore City Circuit Court

May 14, 2015 Expert witness for the petitioner, Bush vs. Bush-Hill, Protective Order Hearing, Baltimore City Circuit Court – Family Division

Continuing Education

June 20, 2015 Danger Assessment Certification Training, Greater Baltimore Medical Center, Towson, MD, 4 Hours

April 1, 2015 District of Columbia Forensic Nurse Examiners Mock Trial and Trial Preparation, Washington, DC, 4 hours

January 30, 2015 Human Trafficking Medical Screening Protocol Training, Mercy Medical Center, Baltimore, MD 5.75 hours

May 27, 2014 Research Ethics Workshops About Responsibilities and Duties of Scientists (REWARDS) training, Johns Hopkins Medicine Office of Continuing Medical Education, Baltimore, MD, 6 hours

October 2013 Forensic Nurse Examiner – Adult/Adolescent Training Course, Towson, MD; 40 hours

June 2013 Qualitative Analysis, University of North Carolina, Chapel Hill, Chapel Hill, NC; 32 hours

September 2012 Workshop on Principles and Strategies of Teaching and online training modules on teaching strategies and evaluation. Johns Hopkins University School of Nursing, Baltimore, MD; 6 hours

September 2012 Online training module: Simulation in Nursing Education, Johns Hopkins University School of Nursing, Baltimore, MD; 3 hours

June 2011 Danger Assessment Certification

September 2010 Certified Neuroscience Registered Nurse Review Course, Johns Hopkins Hospital, Baltimore, MD; 21 contact hours

August 2009 Forensic Nurse Examiner – Adult/Adolescent Training Course, Hagerstown, MD; 40 hours

Other

July 2015-June 2016 Futures Without Violence Campus Leadership Fellow

May 18, 2015 Johns Hopkins Women's Health Research Group, Annual Symposium Planning Committee Member

- | | |
|-----------------|---|
| May 14-16, 2014 | National Institute of Justice / National Science Foundation Workshop on Preventing Intimate Partner Violence, Graduate Student Participant |
| 2010-2011 | Member, National Association of Clinical Nurse Specialists, Chesapeake Bay Chapter working group to draft legislation for Clinical Nurse Specialist Advanced Practice Registered Nursing role for Maryland Board of Nursing |

Curriculum Vita Format Part II

EDUCATIONAL ACTIVITIES

- | | |
|-------------------|---|
| April 12, 2016 | Trainer, <i>Trauma-Informed Care Training</i> , Johns Hopkins Medical Institutions Urban Health Residency Program, Baltimore, MD |
| March 21, 2016 | Guest Instructor, <i>Inter-professional Military Sexual Assault Care Training</i> , Uniform Health Services University, Bethesda, MD |
| February 16, 2016 | Guest Lecturer, <i>Sexual Assault Nursing</i> , NR110.593 Family Violence, Johns Hopkins University School of Nursing, Baltimore, MD |
| Fall 2015 | Guest Lecturer, <i>Medical Forensic Examinations in Low Resource Settings</i> , Confronting Gender Based Violence in India, Massive Open Online Course hosted by Johns Hopkins School of Public Health, Baltimore, MD |
| June 3, 2015 | Guest Lecturer, <i>Evidence Collection in Trauma Patients</i> , Sinai Hospital Trauma Education Days, Baltimore, MD |
| May 6, 2015 | Guest Lecturer, <i>Sexual Violence and Medical History Taking</i> , Johns Hopkins University School of Medicine “Taking an Excellent Sexual History” Event, Baltimore, MD |
| March 12, 2015 | Guest Lecturer, <i>Medical Forensic History Taking</i> , Mercy Medical Center Forensic Nurse Examiner Training, Baltimore, MD |
| February 24, 2015 | Guest Lecturer, <i>Sexual Assault Nursing</i> , NR110.593 Family Violence, Johns Hopkins University School of Nursing, Baltimore, MD |

November 11, 2014	Guest Lecturer, <i>Intimate Partner Violence and the Role of the Forensic Nurse Examiner</i> , Orthopedic Resident Training, Johns Hopkins University School of Medicine, Baltimore, MD
March 11, 2014	Guest Lecturer, <i>Sexual Assault Nursing</i> , NR110.593 Family Violence, Johns Hopkins University School of Nursing, Baltimore, MD
Fall 2013	Clinical Instructor, NR110.315 Adult Health I, Johns Hopkins University School of Nursing, Baltimore, MD
Fall 2013	Teaching Assistant, NR110.633 Injury Pathology and Advanced Trauma Assessments, Johns Hopkins University School of Nursing, Baltimore, MD
Fall 2013	Teaching Assistant, NR110.628 Fundamentals of Forensic Nursing, Johns Hopkins University School of Nursing, Baltimore, MD
Spring 2013	Standardized Patient. NR110.312 Psychiatric and Mental Health Nursing. Johns Hopkins University School of Nursing, Baltimore, MD
Spring 2013	Teaching Assistant, NR110.315 Adult Health I, Johns Hopkins University School of Nursing, Baltimore, MD
Fall 2012	Standardized Patient. NR110.312 Psychiatric and Mental Health Nursing. Johns Hopkins University School of Nursing, Baltimore, MD
Fall 2012	Teaching Assistant, NR110.315 Adult Health I, Johns Hopkins University School of Nursing, Baltimore, MD
February 21, 2012	Guest Lecturer, <i>Sexual Assault Nursing</i> , NR110.593 Family Violence, Johns Hopkins University School of Nursing, Baltimore, MD
Fall 2006	Teaching Assistant, DANC196 Modern Dance Technique, St. Cloud University, Department of Theatre, Film Studies and Dance, St. Cloud, MN
Spring 2005	Teaching Assistant, BIO204 Human Anatomy and Physiology II, St. Cloud State University, Department of Biological Sciences, St. Cloud, MN

ACADEMIC SERVICE

2013-2014 Johns Hopkins University School of Nursing, PhD Student Ethics Committee representative

2012-2016 Johns Hopkins University School of Nursing, Doctoral Student Organization, Treasurer

MENTORING

2016 Joseph Crowley, MSN Student, Johns Hopkins University School of Nursing, Helene Fuld Patient Safety and Quality Fellowship

2015 Margaret Schultz, BSN Student, Johns Hopkins University School of Nursing Research Honors Program

2015 Melinda Chau, BSN Student, Johns Hopkins University School of Nursing Research Honors Program
Project: Rates of Non-Adherence of Medical Appointments by Type for Women Living With HIV

2014 Jessica Williams, BSN Student, Johns Hopkins University School of Nursing Research Honors Program
Project: The Impact of IPV, PTSD and Depression on Antiretroviral Adherence Among HIV Positive Women

2014 Jennifer Jensen, BSN Student, Johns Hopkins University School of Nursing Research Honors Program
Project: The Impact of IPV, PTSD and Depression on Antiretroviral Adherence Among HIV Positive Women